AIR FORCE SITE CHARACTERIZATION AND ANALYSIS PENETROMETER SYSTEM (AFSCAPS): LASER-INDUCED FLUORESCENCE CONE PENETROMETER - ANALYTICAL TESTING DATA SHEETS (VOL V OF V - PART 1 OF 2)

James D. Shinn, Wesley L. Bratton

Applied Research Associates, Inc. RFD #1, Box 120-A, Waterman Road South Royalton, VT 05068

> ENVIRONICS DIRECTORATE 139 Barnes Drive, Suite 2 Tyndall AFB FL 32403-5323



December 1994

Final Technical Report for Period March 1992 - November 1992

Approved for public release; distribution unlimited.

19950530 031

DIED QUALIFY INSPECTED &

AIR FORCE MATERIEL COMMAND TYNDALL AIR FORCE BASE, FLORIDA 32403-532<u>3</u>

NOTICES

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any employees, nor any of their contractors, subcontractors, or their employees, make any warranty, expressed or implied, or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency, contractor, or subcontractor thereof. The views and opinions of the authors expressed herein do not necessarily state or reflect those of the United States Government or any agency, contractor, or subcontractor thereof.

When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely Government-related procurement, the United States Government incurs no responsibility or any obligation whatsoever. The fact that the Government may have formulated or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication, or otherwise in any manner construed, as licensing the holder or nay other person or corporation; or as conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

The following commercial products (requiring Trademark®) are mentioned in this report. Because of the frequency of usage, the Trademark was not indicated. If it becomes necessary to reproduce any segment of this document containing any of these names, this notice must be included as part of that reproduction.

Silicon Graphics Continuum	Tektronix Fiberguid e	TECHBASE Telzel
Chromex	Torr-Seal	Teflon
Spex		

This technical report has been reviewed by the Public Affairs Office (PA) and is releasable to the National Technical Information Service (NTIS) where it will be available to the general public, including foreign nationals.

This report has been reviewed and is approved for publication.

BRUCE J. MELSEN

Project Manager

ROBERT G. LAPOE, Lt. Col, USAF, BSC

Chief, Site Remediation Division

MICHAEL G. KATONA, PhD

Michael & Katone

Chief Scientist, Environics Directorate

NEIL J. LAMB, Colonel, USAF, BSC

Director, Environics Directorate

-	_	-			•	~.			-	TIO		\sim	THIS	_	400	۰
	-		11-	'11	v	(: 1	Δ.	NIE!	II : A	. 1 16)	IN I	· 1	1015	м.	A(-i-	,

SECURITY CLASSI	FICATION OF THIS	PAGE						
	REI	PORT D	OCUMENTATIO	N PAGE				Approved No. 0704-0188
1a. REPORT SEC UNCLASSIFI	URITY CLASSIFICA IED	TION		1b. RESTRICTIV	/E MARKINGS			
2a. SECURITY CLASSIFICATION AUTHORITY				DISTRIBUTION / AVAILABILITY OF REPORT Available for public release.				
2b. DECLASSIFIC	ATION / DOWNGRA	DING SCHE	DULE	Distribution u	inimited.			
4. PERFORMING	ORGANIZATION RE	PORT NUM	BER(S)		ORGANIZATION F			
			Tel. 055105 0104001		R-1993-0009			//Part 1
	RFORMING ORGANI th Associates, Inc.		6b. OFFICE SYMBOL (If applicable) ARA		ONITORING ORGA I Engineering Su			
	ty, State, and ZIP Co				City, State, and ZIP	Code)		
	0-A, Waterman R	Road		HQ AFCESA/		400 606		
South Royalton,	VT 05068			Tyndall Air Fo	orce Base, FL 324	103-600)1	
ORGANIZATIO		NG	8b. OFFICE SYMBOL (If applicable)		ENT INSTRUMENT	IDENTIF	ICATION	NUMBER
	Laboratory		EQW	F08635-88-C				
	ty, State, and ZIP Co			10. SOURCE OF	FUNDING NUMBE			
	es Drive, Sui AFB FL 32403-			PROGRAM ELEMENT NO.	PROJECT NO.	TASK	10.	WORK UNIT ACCESSION NO.
Air Force Site C	alytical Testing Da	nd Analysis	Penetrometer System Part 1 of 2) (Vol. V o		er Induced Fluor	escence	e Cone	Penetrometer,
	Wesley L. Bratto	n						
13a. TYPE OF RE Final	PORT	13b. TIME		14. DATE OF RE	EPORT (Year, Mont	h, Day)	15. PA	GE COUNT
16. SUPPLEMENT	FARY NOTATION	FROM Ma	r. '92 TO Nov. '92	Decembe.	1994		İ	
17.	COSATI CODES	T OUR OF		TERMS (Continue on ence, charac	reverse if necessar tonization	y and ide	entify by	block number) h+
FIELD	GROUP	ŞUB-GR	demonstra	ation, cone				
			BTEX, fue					
			and identify by block numb -Electric Cone Pene		IE_CPT) system	กพรา	demon	strated at Tinke
A prototype La	(Tinker AFR)	Oklahoma	as an innovative tech	hnology for delir	neating soil cont	tamina	tion res	sulting from fue
spills Applied	Research Associ	iates Inc.	(ARA) and the North	n Dakota State Ui	niversity (NDSI	D) cond	lucted	the developmen
program for the	e Air Force using	σ LIF-CP	Γ components devel	oped within the	Triservice Site	Charac	terizati	on and Analysis
Penetrometer S	System (SCAPS)	effort	Major components	of the system co	onsisted of ARA	A's con	e pene	trometer system
counted with N	DSI i's tunable la	aser fluori	meter. To enable ra	nid efficient and	minimally inv	asive s	ite cha	racterization, the
LIE-CPT probe	e data outnut wa	s linked to	ARA's real-time ar	alvsis system wi	ith three-dimens	sional	modeli	ng and scientific
visualization of	anahilities Field	d testing a	at Tinker AFB was o	conducted to eva	luate the LIF-C	PT pro	be. D	uring the testing
program 112	apaumines. Their	oht contan	ninated sites were c	onducted. At so	elect locations.	soil a	nd wat	er samples were
obtained with	CPT or drilling	g technol	ogies, and tested u	sing analytical i	procedures to	confirm	the r	presence of fue
contamination.		6	6 ,				•	
		alytical tes	sting results from the	off-site laborate	ory used during	the de	monstr	ation program.
20. DISTRIBUTIO	N / AVAILABILITY O	F ABSTRAC		21. ABSTRACT SE		CATION		
☐ UNCLASSIFIED	OUNLIMITED S	SAME AS RP	T. DTIC USERS	UNCLASS				
22a. NAME OF RE Bruce Niel	ESPONSIBLE INDIVI	IDUAL		22b. TELEPHONE (904) 283-601			OFFICI VW	ESYMBOL
DD Form 1473			Previous editio	ns are obsolete.	SECURITY	CLASS	SIFIÇATION	ON OF THIS PAGE
					UNC	LASSI	FIED	

(The reverse of this page is blank.)

PREFACE

This report was prepared by Applied Research Associates, Inc. (ARA), Waterman Road, South Royalton, VT 05068, under contract FO8635-88-C-0067, SETA SSG Subtask 8.00, for the Air Force Civil Engineering Support Agency, Engineering and Services Laboratory, Tyndall Air Force Base, Florida 32403-6001. North Dakota State University was a subcontractor to ARA and fabricated and assisted in demonstrating the laser spectrometry technology.

This work was sponsored by the Oklahoma City Air Logistics Command, Directorate of Environmental Management (OC-ALC/EM) and the U.S. Air Force Civil Engineering Support Agency (AFCESA). Ms. Beverly Allen of OC-ALC/EM and Mr. Bruce Nielsen of AFCESA/RAVW were the Government technical program managers.

Accesio	n For						
NTIS CRA&I DTIC TAB Unannounced Justification							
By Distribution /							
A	vailabilit	y Codes					
Dist	Avail a Spe						
A-1							

EXECUTIVE SUMMARY

A. OBJECTIVE

The Air Force Site Characterization and Analysis Penetrometer System (AFSCAPS) project was initiated to further develop the combined technology of the U.S. Army Corps of Engineers Waterways Experiment Station's (WES) SCAPS program and the Air Force Laser Spectroscopy Program. The purpose of the program was to enable the Air Force to address characterization, remediation and post-remedial monitoring of fuel-contaminated sites in a more efficient and effective manner. The primary objectives of this program were to develop, demonstrate, and evaluate the Laser-Induced Fluorescence-Cone Penetrometer Technique (LIF-CPT) system for the characterization of petroleum fuel-contaminated sites.

B. BACKGROUND

The Department of Defense is conducting nationwide remediation efforts to clean up contaminated military and weapons facilities. It has been estimated that remediation of these DoD facilities will require expenditure of \$24 billion dollars by the DoD over the next 30 years. Identifying, characterizing and developing remediation plans for these contaminated sites is a high priority for the DoD.

Potential cost savings realized through cone penetrometer-based environmental site investigations have fostered federal research and development efforts by the U.S. Army, Navy and Air Force. Together they have supported the Tri-service Site Characterization and Analysis Penetrometer System (SCAPS) program. To better characterize hazardous waste sites, improved investigative tools and methods are being developed for use with cone penetrometers. One such tool is the laser fluorimeter. Initially developed at WES, specifically for use in detecting diesel fuel marine (DFM) for the U.S. Navy, the Air Force has sponsored additional research to modify the laser fluorimeter/cone penetrometer system for use in detecting jet fuel, heating oil and gasoline-contaminated soils.

C. SCOPE

To accomplish the objectives of this project the following tasks were completed:

- evaluation of the current LIF state-of-art,
- development of specifications for the new LIF system,
- fabrication and laboratory testing/evaluation of the LIF-CPT system,
- field demonstrations and evaluations at Tinker and Carswell AFBs of the AF LIF-CPT system.

This technical report is organized in five separate volumes:

- ♦ Volume I discusses the development of the LIF-CPT system including a review of the current state-of-art of the WES SCAPS program and NDSU's research work.
- Volume II is a review of the sites investigated at Tinker AFB.
- Volume III presents results from Carswell AFB.

- Volume IV consists of comprehensive appendix of all LIF-CPT logs, boring logs, WTM plots, and demonstration, test and evaluation (DT&E) plans for both Tinker and Carswell AFB's.
- Finally, Volume V contains the laboratory analytical data for samples obtained at Tinker AFB.

D. METHODOLOGY

The WES system employed a nitrogen laser system that is limited to the emission of a single excitation wavelength of 337 nanometers (nm). This is useful for the detection of large multi-ring fuels such as DFM but it has been shown that light fuels such as jet fuels and gasoline have only weak spectral signatures when excited with a 337 nm light pulse. Excitations at shorter wavelengths, such as 280 to 290 nm for jet fuels and 260 nm for gasoline, provide much stronger and distinctive fluorescence spectra. One of the primary goals of this project was to develop and test a tunable laser that allows the investigator to select the most appropriate wavelength depending on the contaminant of interest and site conditions.

Under this program, North Dakota state University (NDSU) developed and tested a laser fluorimeter to analyze aromatic hydrocarbons in situ. The NDSU system features a full-wavelength tunable dye system with a pulsed laser (Nd:YAG), fiber optic probe and detection system. Applied Research Associates, Inc. (ARA) incorporated the laser system with a cone penetrometer truck producing a robust site assessment tool capable of quickly locating and quantifying fugitive petroleum, oil and lubricant (POL) contamination.

E. TEST DESCRIPTION

The test program consisted of two phases, (1) evaluation of the LIF-CPT probe under laboratory conditions, and (2) evaluation of the LIF-CPT probe under field conditions.

The laboratory testing consisted of three major efforts (1) selecting and characterizing representative soils from Tinker AFB, (2) evaluation of the effect of bending the fiber-optic cable on the LIF response, and (3) determining the sensitivity of the LIF system to expected fuel contaminants.

During the field demonstration and evaluation program several objectives were addressed. Primarily, this phase demonstrated that a CPT deployed LIF system could be used to locate fuel-contaminated soils to at least the regulatory limits of 100 ppm. Other criteria such as system reliability, stability and repeatability, correlation of LIF-CPT intensity to contaminate concentration and evaluation of the sources of data scatter in the chemical and LIF-CPT data were evaluated. In addition, the cost effectiveness of the LIF-CPT was evaluated as well as its ability to provide highly detailed real-time data for on-site graphical representation.

F. RESULTS

The following summarizes the results from the laboratory and field evaluations:

 Attenuation due to bending in the fiber optic cable was not significant except at the probe end where the fibers are bent 90 degrees in a 1.25 inch radius. High mechanical stresses caused the glass fibers to separate from the nylon jacket and move relative to the focal plane resulting in unacceptable baseline levels.

◆ The fluorescence spectra of JP-4 and JP-5 were indistinguishable using the LIF-CPT system. The WTMs of jet fuel and heating oil were noticeably different.

- Fluorescence of PAHs dominate the emission spectra of the subject fuels for excitation in the ultraviolet region shorter than 300 nm. The optimal excitation wavelength for continuous LIF-CPT soundings is 280-290 nm or shorter.
- ◆ The variation in the fluorescence spectral distribution is dependent on the matrix (i.e., neat, dissolved, on soil).
- ♦ Humic acids' contribution to LIF in soils play an important role in the long wavelength fluorescence spectral distribution.

G. CONCLUSIONS

Evaluation of the AFSCAPS at Tinker AFB demonstrated that the combination of an LIF-CPT, onsite analytical laboratory, and onsite three-dimensional visualization software can provide more detailed and timely mapping of fuel contamination than can be accomplished by conventional drilling and sampling programs. The LIF-CPT can provide a continuous profile of the contaminant location and relative concentration with detection levels to at least the regulatory limits for TPH.

H. RECOMMENDATIONS

A two-pronged approach is recommended for future development of the LIF-CPT. One aspect should be the continuation of the field studies to provide a broader database for further evaluation of the LIF-CPT probe in a wider range of geologic settings. The other aspect should include improvements in instrumentation, and laboratory and field methods in order to establish the bias, reproducibility, and error of the LIF-CPT system for regulatory acceptance.

I. APPLICATION

The LIF-CPT system could be implemented by the Air Force as the primary technology to conduct environmental site assessments where petroleum, oils and lubricants are involved.

J. BENEFITS

This technology could significantly reduce the time / cost of conducting site assessments and provide superior data to use as a basis for choosing an appropriate remedial strategy.

K. TRANSFERABILITY OF TECHNOLOGY

Virtually all industrial contractors involved with subsurface environmental site assessments where petroleum oils and lubricants are concerned could profit from the use of LIF-CPT technology. The industry in general is constantly seeking ways to conduct business faster, cheaper, and better; CPT-LIF fulfills these criteria.

TABLE OF CONTENTS

Appendix	Title	Page
A	ANALYTICAL RESULTS FROM SOIL SAMPLES FROM NORTH TANK AREA	1
В	ANALYTICAL RESULTS FROM WATER SAMPLES FROM NORTH TANK AREA	59
С	ANALYTICAL RESULTS FROM SOIL SAMPLES FROM FUEL PURGIAREA	
D	ANALYTICAL RESULTS FROM WATER SAMPLES FROM FUEL PURGE AREA	189
E	ANALYTICAL RESULTS FROM SOIL SAMPLES FROM FIRE TRAINING AREA	199
F	ANALYTICAL RESULTS FROM WATER SAMPLES FROM FIRE TRAINING AREA	223
G	ANALYTICAL RESULTS FROM SOIL SAMPLES FROM INDUSTRIAL WASTEWATER TREATMENT PLANT	227
Н	ANALYTICAL RESULTS FROM WATER SAMPLES FROM INDUSTRIAL WASTEWATER TREATMENT PLANT	277
I	ANALYTICAL RESULTS FROM SOIL SAMPLES FROM BLDG. 3001 OUTFALL - EAST SOLDIER CREEK	291
J	ANALYTICAL RESULTS FROM SOIL SAMPLES FROM LANDFILL NO. 2	305
K	ANALYTICAL RESULTS FROM WATER SAMPLES FROM LANDFILL NO. 2	325
L	ANALYTICAL RESULTS FROM SOIL SAMPLES FROM LANDFILL NO. 4	337
M	ANALYTICAL RESULTS FROM WATER SAMPLES FROM LANDFILL NO. 4	359
N	ANALYTICAL RESULTS FROM SOIL SAMPLES FROM OFFBASE (BONNEWELL) AREA	367

TABLE OF CONTENTS (CONCLUDED)

Appendix	Title	Page
0	TCLP ANALYSES OF COMPOSITED DRUM SAMPLES AND FRAC TANK RINSATE	. 403
P	ANALYTICAL RESULTS FROM LABORATORY AND EQUIPMENT BLANKS	.421
Q	SAMPLE CHAIN OF CUSTODY FORMS	. 431

APPENDIX A

ANALYTICAL RESULTS FROM SOIL SAMPLES FROM NORTH TANK AREA



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B01-SS1 13'-14'

Collected By: JPJ

Date & Time Taken:

09/17/92 1220

Other Data: Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221082 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2100 09/30/92		EPA Method 3550	LM
Xylenes	nd	ug/kg	1403 09/30/92	5.0	EPA Method 8240	₽₩
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1700 09/23/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	2205 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	4	mg/kg	2205 09/30/92	0.05	EPA Method 610	КВ
Acrolein	ND	ug/kg	1403 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1403 09/30/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1403 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1403 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1403 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221082 Continued

Page 2

	•					
PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1403 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1403 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1403 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1403 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	380	mg/kg	1300 09/21/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221082

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date B

Phenols



Analytical Chemistry • Utility Operations

221082 Continued

Page 3

Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
Blank	<.02	mg/l				1430	09/28/92	WMB
Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
		Total	Petroleum	Hydroca	rbons			
Blank	ND	MG/KG				1300	09/21/92	TES
Standard	50	PPM	50		100	1300	09/21/92	TES
Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
Duplicate	27	MG/KG	30		111	1300	09/21/92	TĚS
	Blank Standard Duplicate Blank Standard Duplicate	Blank <.02 Standard .051 Duplicate .06 Blank ND Standard 50 Duplicate 32000	Blank <.02 mg/l Standard .051 mg/l Duplicate .06 mg/l Total Blank ND MG/KG Standard 50 PPM Duplicate 32000 MG/KG	Blank <.02 mg/l .050 Standard .051 mg/l .050 Duplicate .06 mg/l .06 Total Petroleum Blank ND MG/KG Standard 50 PPM 50 Duplicate 32000 MG/KG 37000	Blank <.02 mg/l Standard .051 mg/l .050 Duplicate .06 mg/l .06 Total Petroleum Hydroca Blank ND MG/KG Standard 50 PPM 50 Duplicate 32000 MG/KG 37000	Blank <.02 mg/l .050 102 Standard .051 mg/l .050 100 Total Petroleum Hydrocarbons Blank ND MG/KG Standard 50 PPM 50 100 Duplicate 32000 MG/KG 37000 114	Blank <.02	Blank <.02

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount	
Naphthalene	ND(.05)	mg/l
2-Methylnaphthalene	ND(.05)	mg/l

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0	***		100.0	PASS
96	5.0	9.0	95	8.2	PASS
173		2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS

Continued



Analytical Chemistry • Utility Operations

221082 Continued 11/05/92

7.3

Page 4

177

5.0

9.0

176

PASS

I certify that the results were generated using the above specified methods.

5



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: NTA-B02-SS1 12'-14'

Collected By: JPJ

09/17/92 1615 Date & Time Taken:

Other Data: Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221081 Received: 09/18/92 Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->2	g->ml	2151 09/25/92		EPA Method 3550	LM
Xylenes	nd	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1700 09/23/92		EPA Method 420.1	кс
Naphthalene	ND	mg/kg	1715 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1715 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1545 09/29/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1545 09/29/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1545 09/29/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1545 09/29/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1545 09/29/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
6111 01 01 01 III	NU	49/ 49	1343 07/27/72	2.0	EIR HOUNDS OFTO	



Analytical Chemistry • Utility Operations

11/05/92

221081 Continued

Page 2

	•						
_	PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD EPA Method 8240	BY
	Chloromethane	ND	ug/kg	1545 09/29/92	10	EPA Method 8240	PM
	Dibromochloromethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	Bromodichloromethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	1,1-Dichloroethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	1,2-Dichloroethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	1,1-Dichloroethene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	trans-1,2-Dichloroethene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	Dichlorodiflouromethane	ND	ug/kg	1545 09/29/92	1.0	EPA Method 8240	PM
	1,2-Dichloropropane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	cis-1,3-Dichloropropene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	Ethyl benzene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	Methylene Chloride	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	1,1,2,2-Tetrachloroethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	Tetrachloroethene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	Toluene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	1,1,1-Trichloroethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	1,1,2-Trichloroethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	Trichloroethene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	Trichlorofluoromethane	ND	ug/kg	1545 09/29/92	10	EPA Method 8240	PM
	Vinyl Chloride	ND	ug/kg	1545 09/29/92	10	EPA Method 8240	PM
	trans-1,3-Dichloropropene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
	Total Petroleum Hydrocarbons	22	mg/kg	1300 09/21/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221081

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date

Phenols



Analytical Chemistry • Utility Operations

11/05/92

221081 Continued

Page 3

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Blank	<.02	mg/l				1430	09/28/92	WMB
	Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference	
Naphthalene	100	115	mg/l	14%	
2-Methylnaphthalene	200	219	mg/l	9%	

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount	
Naphthalene	ND(.05)	mg/l
2-Methylnaphthalene	ND(.05)	mg/l

BROMOFLUOROBENZENE

Ion Abundance Criteria

	m/z	Min %	Max %	Mass	Actual	Status
-	50	15.0	40.0	95	17.6	PASS
	75	30.0	60.0	95	54.0	PASS
	95	100.0			100.0	PASS
	96	5.0	9.0	95	8.2	PASS
	173		2.0	174	0.2	PASS
	174	50.0		95	90.1	PASS
	175	5.0	9.0	174	7.5	PASS
	176	95.0	101.0	174	95.0	PASS

Continued



Analytical Chemistry • Utility Operations

221081 Continued

Page 4

177

5.0

9.0

176 7.3 PASS

I certify that the results were generated using the above specified methods.

9

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-04-SS1 9.3-10.9

Collected By:

JPJ

Date & Time Taken:

09/03/92 1230

Other Data: Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04) Lab Sample Number: 219892 Received: 09/04/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/kg	2246 09/14/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	2246 09/14/92	100	EPA Method 8240	PM
Benzene	ND ·	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	2246 09/14/92	10	EPA Method 8240	РМ
Carbon Tetrachloride	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	₽M
Chlorobenzene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	2246 09/14/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	2246 09/14/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	2246 09/14/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

219892 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	2246 09/14/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Toluene	14	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	2246 09/14/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	2246 09/14/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM

Quality Assurance for the SET with Sample 219892

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	15.4	PASS
75	30.0	60.0	95	46.4	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	6.8	PASS
173	***	2.0	174	0.2	PASS
174	50.0		95	63.1	PASS
175	5.0	9.0	174	6.9	PASS

Continued



Analytical Chemistry • Utility Operations

11/05/92

219892 Continued

Page 3

176 95.0 177 5.0 101.0

174 95.0

PASS

5.0 9.0 176 6.6 PASS

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: NTA-04-SS1

Collected By:

Date & Time Taken:

09/03/92 1230

Other Data: 9.3'-10.9'

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 219896 Received: 09/04/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		0900 09/09/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1500 09/23/92	1	EPA Method 420.1	WMB
Naphthalene	ND	mg/kg	1400 09/16/92	.05	EPA Method 610	КВ
2-Methylnaphthalene	ND	mg/kg	1400 09/16/92	.05	EPA Method 610	КВ
Acrolein	ND	ug/kg	0120 09/15/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0120 09/15/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0120 09/15/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0120 09/15/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0120 09/15/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0120 09/15/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM





Analytical Chemistry • Utility Operations

11/05/92

219896 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Bromodichloromethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM .
1,1-Dichloroethene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM ·
Dichlorodiflouromethane	ND	ug/kg	0120 09/15/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	P M
Methylene Chloride	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0120 09/15/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0120 09/15/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	₽M
Total Petroleum Hydrocarbons	26	mg/kg	1000 09/09/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 219896

			• • • • •	• • • • • • • • • • • • • • •				
Sample #	Description	Result	Units	Dup/Std Value Spk Cond	. Percent	Time	Date	Ву
		Н	droca	rbon Sonication	Extract.			
220015	Duplicate	Complete	d MG/KG	Completed	100	0900	09/09/92	TES
				Phenols				
	Blank	<.02	mg/l			1500	09/23/92	WMB

Continued



Analytical Chemistry • Utility Operations

219896 Continued

Page 3

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
•	Standard	.050	mg/l	.050		100	1500	09/23/92	WMB
221286	Duplicate	ND	mg/l	ND		100	1500	09/23/92	WMB
	·		Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				1000	09/09/92	TES
	Standard	54	PPM	50		108	1000	09/09/92	TES
219942	Duplicate	300	MG/KG	300		100	1000	09/09/92	TES
220015	Duplicate	1500	MG/KG	1300		114	1000	09/09/92	TES

SHIFT 1 STANDARD

09/16/92 1230

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	300	304	mg/l	1%
2-Methylnaphthalene	200	250	mg/l	22%

BATCH 1 BLANK

09/16/92 1230

Analyzed by KB using EPA Method 610

Compound Name	Amount	
Naphthalene	ND(10)	mg/l
2-Methylnaphthalene	ND(10)	mg/l

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	15.4	PASS
75	30.0	60.0	95	46.4	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	6.8	PASS
173		2.0	174	0.2	PASS
174	50.0		95	63.1	PASS
175	5.0	9.0	174	6.9	PASS
176	95.0	101.0	174	95.0	PASS
177	5.0	9.0	176	6.6	PASS

Continued



Analytical Chemistry • Utility Operations

219896 Continued

Page 4

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: NTA-04-SS2

Collected By:

Date & Time Taken:

09/03/92 1300

Other Data: Tinker AFB/@ 15.3'

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 219893 Received: 09/04/92

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	ВУ
Xylenes	nd	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/kg	2325 09/14/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	2325 09/14/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	2325 09/14/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	2325 09/14/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	2325 09/14/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	2325 09/14/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

219893 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	2325 09/14/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM .
cis-1,3-Dichloropropene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM **
Methylene Chloride	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	2325 09/14/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	2325 09/14/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM

Quality Assurance for the SET with Sample 219893

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	15.4	PASS
75	30.0	60.0	95	46.4	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	6.8	PASS
173	- • -	2.0	174	0.2	PASS
174	50.0		95	63.1	PASS
175	5.0	9.0	174	6.9	PASS

Continued



Analytical Chemistry • Utility Operations

219893 Continued

Page 3

95.0 176 177 5.0 101.0 9.0

174 95.0 176 6.6

Whiteside, Ph.D., President

PASS PASS

I certify that the results were generated using the above specified methods.

19

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-04-SS3

13'-16.8'

Collected By:

JPJ

09/03/92 1430

Other Data: Tinker AFB

Date & Time Taken:

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 219894 Received: 09/04/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	200	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Acrolein	ND	ug/kg	1218 09/15/92	500	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1218 09/15/92	500	EPA Method 8240	PM
Benzene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Bromoform	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1218 09/15/92	50	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1218 09/15/92	50	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1218 09/15/92	50	EPA Method 8240	PM
Chloroform	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1218 09/15/92	50	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

219894 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	ВУ
trans-1,2-Dichloroethene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1218 09/15/92	5.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Ethyl benzene	200	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Toluene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1218 09/15/92	50	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1218 09/15/92	50	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM

Quality Assurance for the SET with Sample 219894

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.4	PASS
75	30.0	60.0	95	48.1	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	7.2	PASS
173		2.0	174	0.3	PASS
174	50.0		95	57.9	PASS
175	5.0	9.0	174	7.1	PASS

Continued



Analytical Chemistry • Utility Operations

11/05/92

219894 Continued

Page 3

176 95.0 177 5.0 9.0

174 95.6176 6.1

PASS PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-04-SS2/SS3 13-16.8

Collected By:

Date & Time Taken:

09/03/92

Other Data: Tinker AFB/Flowing above 16.3'

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 219895 Received: 09/04/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	2133 09/09/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		0900 09/09/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1500 09/23/92	2	EPA Method 420.1	WMB
2-Methylnaphthalene	9	mg/kg	1425 09/16/92	.05	EPA Method 610	KB
Acenaphthene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Acrolein	ND	ug/kg	1257 09/15/92	500	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1257 09/15/92	500	EPA Method 8240	PM
Aldrin	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Benzidine	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92

219895 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Bis(2-chloroethyl)ether	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM ,
4-Bromophenyl phenyl ether	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM -
Bromoform	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1257 09/15/92	50	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
4-Chloro-3-methylphenol	ND	ug/kg	1908 09/14/92	670	EPA Method 8270	PM
Chlorobenzene	30	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1257 09/15/92	50	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1257 09/15/92	50	EPA Method 8240	PM
Chloroform	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1257 09/15/92	50	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
2-Chlorophenol	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92 219895 Continued

Page 3

ARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
3,3'-Dichlorobenzidine	ND	ug/kg	1908 09/14/92	670	EPA Method 8270	PM
Bromodichloromethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
2,4-Dichlorophenol	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Dichlorodiflouromethane	ND	ug/kg	1257 09/15/92	5.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
2,4-Dimethylphenol	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
oi-n-butylphthalate	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
2-Methyl-4,6-dinitrophenol	ND	ug/kg	1908 09/14/92	1700	EPA Method 8270	PM
2,4-Dinitrophenol	ND	ug/kg	1908 09/14/92	1700	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Ethyl benzene	290	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Fluoranthene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92

219895 Continued

Page 4

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hexachlorobutadiene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Hexachioroethane	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM .
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Methylene Chloride	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Naphthalene	5300	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	РМ
2-Nitrophenol	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
4-Nitrophenol	ND	ug/kg	1908 09/14/92	1700	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Pentachlorophenol	ND	ug/kg	1908 09/14/92	1700	EPA Method 8270	PM
Phenanthrene	5600	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Phenol	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Toluene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	P M
1,2,4-Trichlorobenzene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
1,1,1-Trichloroethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	P M
1,1,2-Trichloroethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

219895 Continued

Page 5

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Trichlorofluoromethane	ND	ug/kg	1257 09/15/92	50	EPA Method 8240	PM
2,4,6-Trichlorophenol	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
_ Vinyl Chloride	ND	ug/kg	1257 09/15/92	50	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Xylenes	250	ug/kg	1257 09/15/92		EPA Method 8240	PM
Total Petroleum Hydrocarbons	26000	mg/kg	1000 09/09/92	500	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 219895

Sample #	Description	Result	Units	Dup/Std Value Spk Conc.	Percent	Time	Date	Ву
		H	droca	rbon Sonication Ex	tract.			
220015	Duplicate	Complete	ed MG/KG	Completed	100	0900	09/09/92	TES
				Phenols				
	Blank	<.02	mg/l			1500	09/23/92	WMB
	Standard	.050	mg/l	.050	100	1500	09/23/92	WMB
221286	Duplicate	ND	mg/l	ND	100	1500	09/23/92	MMB
			Total	Petroleum Hydroca	rbons			
	Blank	ND	MG/KG			1000	09/09/92	TES
	Standard	54	PPM	50	108	1000	09/09/92	TES
219942	Duplicate	300	MG/KG	300	100	1000	09/09/92	TES
220015	Duplicate	1500	MG/KG	1300	114	1000	09/09/92	TES

SHIFT 1 STANDARD

09/16/92 1230

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	300	304	mg/l	1%
2-Methylnaphthalene	200	250	mg/l	22%

BATCH 1 BLANK

09/16/92 1230

Analyzed by KB using EPA Method 610

Compound Name	Amount		
Naphthalene	ND(10)	mg/l	
2-Methylnaphthalene	ND(10)	mg/l	



Analytical Chemistry • Utility Operations

219895 Continued

Page 6

DECAFLUOROTRIPHENYLPHOSPHINE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
51	30.0	60.0	198	38.3	PASS
68		2.0	69	0.0	PASS
69				51.7	PASS
70		2.0	69	0.0	PASS
127	40.0	60.0	198	50.1	PASS
197	•••	1.0	198	0.0	PASS
198	100.0			100.0	PASS
199	5.0	9.0	198	8.1	PASS
275	10.0	30.0	198	21.7	PASS
365	1.0		198	2.3	PASS
441		100.0	443	74.4	PASS
442	40.0		198	57.1	PASS
443	17.0	23.0	442	20.8	PASS

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.4	PASS
75	30.0	60.0	95	48.1	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	7.2	PASS
173		2.0	174	0.3	PASS
174	50.0		95	57.9	PASS
175	5.0	9.0	174	7.1	PASS
176	95.0	101.0	174	95.6	PASS
177	5.0	9.0	176	6.1	PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: NTA-B05-SS1 13'-14' Hot

Collected By:

Date & Time Taken:

09/17/92 1230

Other Data: Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221085 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->3	g->ml	1530 09/21/92		EPA Method 3550	DDM
Total Sonic Extr. W/Hex Exch.	10->1	g->ml	1058 09/30/92		EPA Method 3550	DDM
Xylenes	nd	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1630 09/24/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1018 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	10	mg/kg	1018 09/30/92	0.05	EPA Method 610	КВ
Acenaphthene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Acrolein	ND	ug/kg	1438 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1438 09/30/92	100	EPA Method 8240	PM
Aldrin	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Anthracene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Benzene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Benzidine	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92

221085 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Benzo(a)pyrene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM.
Benzo(k)fluoranthene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Bromoform	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1438 09/30/92	10	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1438 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1438 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1438 09/30/92	10	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Chrysene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

221085 Continued

Page 3

DADAWEMED	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
PARAMETER 1,2-Dichlorobenzene	RESULTS ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	0801 09/21/92	2000	EPA Method 8270	PM
Bromodichloromethane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1438 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Ethyl benzene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Fluoranthene	1500	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Fluorene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Hexach l orobenzene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

221085 Continued

Page 4

RESULTS	UNITS	ANALYZED	EOL	METHOD	ВУ
ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM-
ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
2500	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
ND	ug/kg	1438 09/30/92	10	EPA Method 8240	PM
ND	ug/kg	1438 09/30/92	10	EPA Method 8240	PM
ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
1700	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
4600	mg/kg	1300 09/21/92	100	EPA Method 418.1	TES
	ND N	ND ug/kg ND ug/kg	ND ug/kg 0801 09/21/92 ND ug/kg 0801 09/21/92 ND ug/kg 0801 09/21/92 ND ug/kg 1438 09/30/92 ND ug/kg 0801 09/21/92 ND ug/kg 1438 09/30/92 ND	ND	ND ug/kg 0801 09/21/92 1000 EPA Method 8270 ND ug/kg 0801 09/21/92 1000 EPA Method 8270 ND ug/kg 0801 09/21/92 1000 EPA Method 8270 ND ug/kg 1438 09/30/92 5.0 EPA Method 8270 ND ug/kg 0801 09/21/92 1000 EPA Method 8270 ND ug/kg 1438 09/30/92 5.0 EPA Method 8240 ND ug/kg 1438 09/30/92 5.0 EPA Me



Analytical Chemistry • Utility Operations

221085 Continued

Page 5

	Qual	ity A	ssuranc	ce for the	SET with	Sample	221085		
			• • • • • •			• • • • • • •	• • • • • • •	• • • • • • • •	• • • • •
Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
,				Pheno	ls				
	Blank	<.02	mg/l				1430	09/28/92	WMB
	Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
	•		Total	Petroleum	Hydrocar	bons			
	Blank	ND	MG/KG		_		1300	09/21/92	TES
•	Standard	50	PP M	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount		
Naphthalene	ND(.05)	mg/l	
2-Methylnaphthalene	ND(.05)	mg/l	

DECAFLUOROTRIPHENYLPHOSPHINE

Ion Abundance Criteria

Status	Actual	Mass	Max %	Min %	m/z
PASS	45.8	198	60.0	30.0	51
PASS	0.0	69	2.0		68
PASS	63.4				69
PASS	1.5	69	2.0		70
PASS	54.1	198	60.0	40.0	127
PASS	0.0	198	1.0		197



Analytical Chemistry • Utility Operations

221085 Continued

Page 6

198	100.0			100.0	PASS
199	5.0	9.0	198	7.6	PASS
275	10.0	30.0	198	22.0	PASS
365	1.0		198	1.7	PASS
441		100.0	443	64.0	PASS
442	40.0		198	49.6	PASS
443	17.0	23.0	442	18.9	PASS

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	8.2	PASS
173	***	2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS
177	5.0	9.0	176	7.3	PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: NTA-B06-SS1 12'-17' Hot F. O.

Collected By:

Date & Time Taken:

09/17/92 0920

Other Data: Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221083 Received: 09/18/92 Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2118 09/30/92		EPA Method 3550	LM
Xylenes	nd	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2000 09/23/92		EPA Method 420.1	KC
Naphthalene	.9	mg/kg	2230 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	2230 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1700 09/29/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1700 09/29/92	100	EPA Method 8240	PM
Benzene	44	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1700 09/29/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1700 09/29/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1700 09/29/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221083 Continued

Page 2

	•					
PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1700 09/29/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1700 09/29/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Ethyl benzene	390	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	РМ
Tetrachloroethene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1700 09/29/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1700 09/29/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	25000	mg/kg	1300 09/21/92	500	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221083

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date By



Analytical Chemistry • Utility Operations

11/05/92

221083 Continued

Page 3

_								*:	Dana	D
	Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	•	Blank	<.02	mg/l				1430	09/28/92	WMB
		Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
	221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
-		•		Total	Petroleum	Hydroca	rbons			
		Blank	ND	MG/KG				1300	09/21/92	TES
		Standard	50	PPM	50		100	1300	09/21/92	TES
	221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
	221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount		
Naphthalene	ND(.05)	mg/l	
2-Methylnaphthalene	ND(.05)	mg/l	

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	8.2	PASS
173		2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS



Analytical Chemistry • Utility Operations

11/05/92

221083 Continued

Page 4

177

5.0

9.0

176 7.3

PASS

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B07-SS1 13'-16'

Collected By:

JPJ

Date & Time Taken:

09/17/92 1100

Other Data: Tinker AFB

Bottle Data: 1 --

1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

221084

Received: 09/18/92

Client: ARS1

BY EQL METHOD RESULTS UNITS ANALYZED PARAMETER EPA Method 3550 2120 09/30/92 LM 30->1 g->ml Total Sonic Extr. W/Hex Exch. 1516 09/30/92 5.0 EPA Method 8240 ug/kg Xylenes nd 1100 09/21/92 EPA Method 3550 *MOD TES Completed Hydrocarbon Sonication Extract. 1430 09/28/92 EPA Method 420.1 **UMB** ND mg/kg Phenols EPA Method 420.1 1630 09/24/92 KC DISTILLED Phenol Distillation 2 mg/kg 2215 09/30/92 0.05 EPA Method 610 KB Naphthalene 2215 09/30/92 0.05 EPA Method 610 KR mg/kg ND 2-Methylnaphthalene EPA Method 8240 1516 09/30/92 100 ND ug/kg Acrolein EPA Method 8240 ug/kg 1516 09/30/92 100 Acrylonitrile ND 1516 09/30/92 5.0 EPA Method 8240 ND ug/kg Benzene EPA Method 8240 1516 09/30/92 5.0 ug/kg Bromoform ND EPA Method 8240 ug/kg 1516 09/30/92 10 ND Bromomethane 1516 09/30/92 5.0 EPA Method 8240 ND ug/kg Carbon Tetrachloride 1516 09/30/92 5.0 EPA Method 8240 Chlorobenzene ND ug/kg EPA Method 8240 Chloroethane 1516 09/30/92 10 ND ug/kg 1516 09/30/92 10 EPA Method 8240 ND ug/kg 2-Chloroethylvinyl ether 1516 09/30/92 5.0 EPA Method 8240 Chloroform ug/kg



Analytical Chemistry • Utility Operations

11/05/92

221084 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1516 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	P M
1,2-Dichloroethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	P M
trans-1,2-Dichloroethene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1516 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	42	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1516 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1516 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	9600	mg/kg	1300 09/21/92	100	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221084

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date B
Phenols



Analytical Chemistry • Utility Operations

221084 Continued

Page 3

	Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	·	Blank	<.02	mg/l		•		1430	09/28/92	WMB
		Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
	221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
		•		Total	Petroleum	Hydroca	rbons			
*		Blank	ND	MG/KG				1300	09/21/92	TES
		Standard	50	PPM	50		100	1300	09/21/92	TES
	221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
-	221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount		
Naphthalene	ND(.05)	mg/l	
2-Methylnaphthalene	ND(.05)	mg/l	

BROMOFLUOROBENZENE

Ion Abundance Criteria

z	Min %	Max %	Mass	Actual	Status
0	15.0	40.0	95	17.6	PASS
' 5	30.0	60.0	95	54.0	PASS
95	100.0	•••		100.0	PASS
96	5.0	9.0	95	8.2	PASS
7 3	•••	2.0	174	0.2	PASS
7 4	50.0		95	90.1	PASS
2 5	5.0	9.0	174	7.5	PASS
76	95.0	101.0	174	95.0	PASS
	72 60 75 95 96 73 74 75	15.0 75 30.0 95 100.0 96 5.0 73 74 50.0 75 5.0	50 15.0 40.0 75 30.0 60.0 95 100.0 96 5.0 9.0 73 2.0 74 50.0 75 5.0 9.0	50 15.0 40.0 95 75 30.0 60.0 95 95 100.0 96 5.0 9.0 95 73 2.0 174 74 50.0 95 75 5.0 9.0 174	50 15.0 40.0 95 17.6 75 30.0 60.0 95 54.0 95 100.0 100.0 96 5.0 9.0 95 8.2 73 2.0 174 0.2 74 50.0 95 90.1 75 5.0 9.0 174 7.5



Analytical Chemistry • Utility Operations

221084 Continued

Page 4

177

5.0

9.0

176 7.3

PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President

Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road VT 05068-South Royalton, Attention: Jack Jemsek

Sample Identification:

NTA-B08-SS1 13'-15' Hot F. O.

Collected By:

09/17/92 1700

Date & Time Taken: Other Data: Tinker AFB

Bottle Data:

1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

221086

Received: 09/18/92

BY METHOD ANALYZED EOL RESULTS UNITS PARAMETER EPA Method 3550 DDM 1116 09/30/92 10->2 g->ml Total Sonic Extr. W/Hex Exch. EPA Method 8240 PM 1600 09/30/92 5.0 ug/kg nd Xyl enes EPA Method 3550 *MOD TES 1100 09/21/92 Completed Hydrocarbon Sonication Extract. WMB EPA Method 420.1 1430 09/28/92 mq/kq ND Phenols EPA Method 420.1 KC 1630 09/24/92 DISTILLED Phenol Distillation 0.05 EPA Method 610 K8 1845 09/30/92 ND mg/kg Naphthalene 0.05 EPA Method 610 ΚB 1845 09/30/92 mg/kg 22 2-Methylnaphthalene 100 EPA Method 8240 PM 1600 09/30/92 ND ug/kg Acrolein EPA Method 8240 100 PM 1600 09/30/92 ND ug/kg Acrylonitrile EPA Method 8240 PM 1600 09/30/92 5.0 ND ug/kg Benzene EPA Method 8240 PM 1600 09/30/92 5.0 ND ug/kg Bromoform EPA Method 8240 PM 10 ug/kg 1600 09/30/92 ND Bromomethane 1600 09/30/92 5.0 EPA Method 8240 PM ND ug/kg Carbon Tetrachloride EPA Method 8240 PM 5.0 1600 09/30/92 ND ug/kg Chlorobenzene EPA Method 8240 PM 10 ND ug/kg 1600 09/30/92 Chloroethane 10 FPA Method 8240 PM 1600 09/30/92 ND ug/kg 2-Chloroethylvinyl ether EPA Method 8240 1600 09/30/92 5.0 ug/kg Chloroform



Analytical Chemistry • Utility Operations

11/05/92

221086 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1600 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM*
1,1-Dichloroethene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1600 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	14	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1600 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1600 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	35000	mg/kg	1300 09/21/92	500	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221086

Result Units Dup/Std Value Spk Conc. Phenols



Analytical Chemistry • Utility Operations

221086 Continued

Page 3

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Blank	<.02	mg/l				1430	09/28/92	WMB
	Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount				
Naphthalene	ND(.05)	mg/l			
2-Methylnaphthalene	ND(.05)	mg/l	•		

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
 50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	8.2	PASS
173		2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS



Analytical Chemistry • Utility Operations

221086 Continued

Page 4

177

5.0

9.0

176 7.3

PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road VT 05068-South Royalton, Attention: Jack Jemsek

Sample Identification:

NTA-B09-SS2 @13'-15'

Collected By:

Date & Time Taken:

09/18/92 1025

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

221300

Received: 09/21/92

METHOD BY EQL ANALYZED RESULTS UNITS PARAMETER EPA Method 3550 DDM 1512 09/30/92 10->1 g->ml Total Sonic Extr. W/Hex Exch. 1645 09/30/92 5.0 EPA Method 8240 PM ug/kg Xylenes 1100 09/25/92 EPA Method 3550 *MOD Hydrocarbon Sonication Extract. Completed .02 EPA Method 420.1 WMB 1700 09/30/92 mg/kg Phenols 1800 09/29/92 EPA Method 420.1 KC DISTILLED Phenol Distillation mg/kg EPA Method 610 1755 09/30/92 0.05 KB Naphthalene ND EPA Method 610 KB 1755 09/30/92 0.05 mg/kg 2-Methylnaphthalene ND EPA Method 8240 PM 1645 09/30/92 100 ug/kg ND Acrolein EPA Method 8240 PM 1645 09/30/92 100 ug/kg Acrylonitrile ND EPA Method 8240 1645 09/30/92 5.0 ug/kg ND Benzene EPA Method 8240 DM. ug/kg 1645 09/30/92 5.0 Bromoform ND EPA Method 8240 1645 09/30/92 10 Bromomethane ND ug/kg EPA Method 8240 PM 1645 09/30/92 5.0 ug/kg Carbon Tetrachloride ND EPA Method 8240 PM ug/kg 1645 09/30/92 5.0 Chlorobenzene ND EPA Method 8240 PM 1645 09/30/92 10 ug/kg Chloroethane ND EPA Method 8240 1645 09/30/92 10 ug/kg 2-Chloroethylvinyl ether ND PM 1645 09/30/92 5.0 EPA Method 8240 ug/kg Chloroform ND



Analytical Chemistry • Utility Operations

11/05/92

221300 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1645 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM ⁻
1,1-Dichloroethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1645 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1645 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1645 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	ND	mg/kg	1420 09/28/92	10	EPA Method 418.1	PLH

Quality Assurance for the SET with Sample 221300

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date By



Analytical Chemistry • Utility Operations

221300 Continued

Page 3

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Blank	<.02	mg/l				1700	09/30/92	WMB
	Standard	.052	mg/l	.050		104	1700	09/30/92	WMB
221301	Duplicate	ND	mg/l	ND		100	1700	09/30/92	WMB
	·		Total	Petroleum	Hydroca	rbons			
	Blank	<10	mg/kg				1420	09/28/92	PLH
	Standard	50	ppm	50		100	1420	09/28/92	PLH
221122	Duplicate	460	mg/kg	450		102	1420	09/28/92	PLH
221147	Duplicate	2800	mg/kg	4300		142	1420	09/28/92	PLH

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount		
Naphthalene	ND(.05)	mg/l	_
2-Methylnaphthalene	ND(.05)	mg/l	

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	8.2	PASS
173		2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS



Analytical Chemistry • Utility Operations

221300 Continued

Page 4

177

5.0

9.0

176 7.3

PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B10-SS1 13'-14'

Collected By:

Date & Time Taken:

09/17/92 1700

Other Data: Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221080 Received: 09/18/92

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2045 09/25/92		EPA Method 3550	LM
Xylenes	nd	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1700 09/23/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1700 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1700 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1935 09/29/92	100	EPA Method 8240	₽₩
Acrylonitrile	ND	ug/kg	1935 09/29/92	100	EPA Method 8240	₽₩
Benzene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1935 09/29/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1935 09/29/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1935 09/29/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221080 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1935 09/29/92	10	EPA Method 8240	PM
Dibromochloromethane	NÐ	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1935 09/29/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
etrachloroethene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
foluene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	P₩
1,1,1-Trichloroethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1935 09/29/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1935 09/29/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	22	mg/kg	1300 09/21/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221080

ple # Description Result Units Dup/Std Value Spk Conc.

Percent

Time

Date

RV



Analytical Chemistry • Utility Operations

221080 Continued

Page 3

_										
	Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
		Blank	<.02	mg/l				1430	09/28/92	WMB
		Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
	221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
		•		Total	Petroleum	Hydroca	rbons			
		Blank	ND	MG/KG				1300	09/21/92	TES
		Standard	50	PPM	50		100	1300	09/21/92	TES
	221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
	221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05)
2-Methylnaphthalene	ND(.05)

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	8.2	PASS
173	***	2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS



Analytical Chemistry • Utility Operations

221080 Continued

Page 4

177

5.0

9.0

176

7.3

PASS

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B11-SS1 @13'-14'

Collected By:

Date & Time Taken:

09/18/92 1130

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

Received: 09/21/92 221299

BY METHOD UNITS ANALYZED EOL PARAMETER RESULTS 1107 09/30/92 EPA Method 3550 DDM 10->1 g->ml Total Sonic Extr. W/Hex Exch. 5.0 EPA Method 8240 1805 09/30/92 PM ug/kg nd Xylenes EPA Method 3550 *MOD PLH Completed 1100 09/25/92 Hydrocarbon Sonication Extract. EPA Method 420.1 UMR 1700 09/30/92 .02 ND mg/kg Phenols EPA Method 420.1 1800 09/29/92 KC DISTILLED Phenol Distillation EPA Method 610 0.05 KR ND mg/kg 1820 09/30/92 Naphthalene EPA Method 610 1820 09/30/92 0.05 KB ND mg/kg 2-Methylnaphthalene EPA Method 8240 PM 100 1805 09/30/92 Acrolein ND ug/kg EPA Method 8240 100 PM 1805 09/30/92 Acrylonitrile ND ug/kg EPA Method 8240 1805 09/30/92 5.0 ug/kg ND Benzene EPA Method 8240 PM 5.0 1805 09/30/92 ug/kg Bromoform ND EPA Method 8240 10 Bromomethane ND ug/kg 1805 09/30/92 1805 09/30/92 5.0 EPA Method 8240 PM ND ug/kg Carbon Tetrachloride 5.0 EPA Method 8240 1805 09/30/92 ug/kg Chlorobenzene ND EPA Method 8240 PM 10 Chloroethane ND ug/kg 1805 09/30/92 10 EPA Method 8240 PM 2-Chloroethylvinyl ether 1805 09/30/92 ND ug/kg EPA Method 8240 PM 5.0 1805 09/30/92 ND ug/kg Chloroform



Analytical Chemistry • Utility Operations

11/05/92

221299 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1805 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
,2-Dichloroethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
,1-Dichloroethene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
rans-1,2-Dichloroethene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
ichlorodiflouromethane	ND	ug/kg	1805 09/30/92	1.0	EPA Method 8240	PM
,2-Dichloropropane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
is-1,3-Dichloropropene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PN
thyl benzene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	P
ethylene Chloride	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
,1,2,2-Tetrachloroethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PI
etrachloroethene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
oluene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
,1,1-Trichloroethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
,1,2-Trichloroethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PN
richloroethene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PN
richlorofluoromethane	ND	ug/kg	1805 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1805 09/30/92	10	EPA Method 8240	PM
rans-1,3-Dichloropropene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PN
Total Petroleum Hydrocarbons	15	mg/kg	1420 09/28/92	10	EPA Method 418.1	PL

Quality Assurance for the SET with Sample 221299

Sample #

Description Result Units

Dup/Std Value Spk Conc. Phenols

Percent

Time Date

Ву



Analytical Chemistry • Utility Operations

221299 Continued 11/05/92

Page 3

	Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
		Blank	<.02	mg/l				1700	09/30/92	WMB
		Standard	.052	mg/l	.050		104	1700	09/30/92	WMB
	221301	Duplicate	ND	mg/l	ND		100	1700	09/30/92	WMB
,		·		Total	Petroleum	Hydroca	rbons			
		Blank	<10	mg/kg				1420	09/28/92	PLH
		Standard	50	ррт	50		100	1420	09/28/92	PLH
	221122	Duplicate	460	mg/kg	450		102	1420	09/28/92	PLH
•	221147	Duplicate	2800	mg/kg	4300		142	1420	09/28/92	PLH
		•								

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400 Analyzed by KB using EPA Method 610

Compound Name	Amount		
Naphthalene	ND(.05)	mg/l	
2-Methylnaphthalene	ND(.05)	mg/l	

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	8.2	PASS
173		2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS



Analytical Chemistry • Utility Operations

11/05/92

221299 Continued

Page 4

177

5.0

9.0

176 7.3 PASS

I certify that the results were generated using the above specified methods.

58

APPENDIX B

ANALYTICAL RESULTS FROM WATER SAMPLES FROM NORTH TANK AREA



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B01

Collected By: JPJ

Date & Time Taken:

09/18/92 1100

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221302 Received: 09/21/92

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Acrolein	ND	ug/l	2037 09/30/92	1000	EPA Method 8240	PM
		-g, \	2037 07730772	1000	EFR RELITOR DE40	FFI
Acrylonitrile	ND	ug/l	2037 09/30/92	1000	EPA Method 8240	PM
Poppone	UB		2077 00 (70 100			-
Benzene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Bromoform	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Bromomethane	ND	ug/l	2037 09/30/92	100	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
			2.1. 1.,11,12		2	
Chlorobenzene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Chloroethane	ND	ug/l	2037 09/30/92	100	EPA Method 8240	PM
	ND	og/ t	2031 07730772	100	EFA Method 8240	rm
2-Chloroethylvinyl ether	ND	ug/l	2037 09/30/92	100	EPA Method 8240	PM
Chloroform	ND		2077 00 (70 (00	50	w 1 00/0	***
CITCO OTOTAL	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Chloromethane	ND	ug/l	2037 09/30/92	100	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
		<u>.</u>				
1,1-Dichloroethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	2037 00/30/02	50	EPA Method 8240	DM
., a brontor octione	NU	ug/ t	2037 09/30/92	90	era method 6240	PM
1,1-Dichloroethene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221302 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/l	2037 09/30/92	10	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Toluene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Trichloroethene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	2037 09/30/92	100	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	2037 09/30/92	100	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Total Petroleum Hydrocarbons	37	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221302

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
•	·		Total	Petroleum	Hydroca	rbons			·
	Blank	ND	MG/KG				1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

BROMOFLUOROBENZENE

Ion Abundance Criteria



Analytical Chemistry • Utility Operations

221302 Continued

Page 3

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	8.2	PASS
173		2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS
177	5.0	9.0	176	7.3	PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B02

Collected By:

JPJ

Date & Time Taken:

09/18/92 1200

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221303 Received: 09/21/92 Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ng	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/l	1128 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1128 09/30/92	100	EPA Method 8240	PM
Benzene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/l	1128 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/l	1128 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	1128 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/l	1128 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND .	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

221303 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	55	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/l	1128 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	P.M
cis-1,3-Dichloropropene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	6.3	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	РМ
Trichloroethene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1128 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1128 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	ND	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221303

Sample #	Description	Result	Units	Dup/Std Value Petroleum	Spk Conc.	Percent	Time	Date	Ву
	Blank	ND	MG/KG				1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

BROMOFLUOROBENZENE

Ion Abundance Criteria



Analytical Chemistry • Utility Operations

221303 Continued

Page 3

	m/z	Min %	Max %	Mass	Actual	\$tatus
•	50	15.0	40.0	95	17.6	PASS
	75	30.0	60.0	95	54.0	PASS
	95	100.0			100.0	PASS
	96	5.0	9.0	95	8.2	PASS
	173		2.0	174	0.2	PASS
	174	50.0		95	90.1	PASS
	175	5.0	9.0	174	7.5	PASS
	176	95.0	101.0	174	95.0	PASS
	177	5.0	9.0	176	7.3	PASS

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B04 Hot F. O.

Collected By: JPJ

Date & Time Taken:

09/16/92 1800

Other Data: Tinker AFB

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221091 Received: 09/18/92 Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Acrolein	ND	ug/l	1046 09/30/92	10000	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1046 09/30/92	10000	EPA Method 8240	PM
Benzene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Bromoform	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Bromomethane	ND	ug/l	1046 09/30/92	1000	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Chloroethane	ND	ug/l	1046 09/30/92	1000	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	1046 09/30/92	1000	EPA Method 8240	PM
Chloroform	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Chloromethane	ND	ug/l	1046 09/30/92	1000	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

221091 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/l	1046 09/30/92	100	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1046 09/30/92	500	EPA Method 8240 .	PM
cis-1,3-Dichloropropene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Toluene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Trichloroethene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1046 09/30/92	1000	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1046 09/30/92	1000	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Total Petroleum Hydrocarbons	2400	mg/l	1100 09/24/92	100	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B05 Hot F. O.

Collected By: JPJ

Date & Time Taken:

09/16/92 1530

Other Data: Tinker AFB

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221088 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Acrolein	ND	ug/l	1601 09/25/92	1000	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1601 09/25/92	1000	EPA Method 8240	PM
Benzene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Bromoform	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Bromomethane	ND	ug/l	1601 09/25/92	100	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Chloroethane	ND	ug/l	1601 09/25/92	100	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	1601 09/25/92	100	EPA Method 8240	PM
Chloroform	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Chloromethane	ND	ug/l	1601 09/25/92	100	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221088 Continued

Page 2

NA NA VIDANO	DECIII MC	UNITS	ANALYZED	EQL	METHOD	BY
PARAMETER trans-1,2-Dichloroethene	RESULTS ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/l	1601 09/25/92	10	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Toluene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	P M
1,1,1-Trichloroethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Trichloroethene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1601 09/25/92	100	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1601 09/25/92	100	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Total Petroleum Hydrocarbons	140	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MO) PLH

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B06

Collected By:

JPJ

Date & Time Taken:

09/18/92 1300

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221306 Received: 09/21/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Acrolein	ND	ug/l	0809 09/30/92	10000	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	0809 09/30/92	10000	EPA Method 8240	PM
Benzene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Bromoform	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Bromomethane	ND	ug/l	0809 09/30/92	1000	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Chloroethane	ND	ug/l	0809 09/30/92	1000	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	0809 09/30/92	1000	EPA Method 8240	PM
Chloroform	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Chloromethane	ND	ug/l	0809 09/30/92	1000	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221306 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/l	0809 09/30/92	100	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Toluene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Trichloroethene .	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	0809 09/30/92	1000	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	0809 09/30/92	1000	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Total Petroleum Hydrocarbons	5100	mg/l	1100 09/24/92	100	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221306

Sample #	Description	Result	Units Total	Dup/Std Value Petroleum	•	Percent rbons	Time	Date	Ву
	Blank	ND	MG/KG				1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

BROMOFLUOROBENZENE

Ion Abundance Criteria



Analytical Chemistry • Utility Operations

221306 Continued

Page 3

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	8.2	PASS
173	***	2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS
177	5.0	9.0	176	7.3	PASS

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B07

Collected By: JPJ

Date & Time Taken:

09/17/92 1500

Other Data: Tinker AFB

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221090 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Acrolein	ND	ug/l	2241 09/30/92	200	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	2241 09/30/92	200	EPA Method 8240	PM
Benzene	14	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Bromoform	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Bromomethane	ND	ug/l	2241 09/30/92	20	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Chloroethane	ND	ug/l	2241 09/30/92	20	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	2241 09/30/92	20	EPA Method 8240	PM
Chloroform	ND	ug/l	2241 09/30/92	10	EPA Method 8240	РМ
Chloromethane	ND	ug/l	2241 09/30/92	20	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221090 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	ВУ
trans-1,2-Dichloroethene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/l	2241 09/30/92	2.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	FM
cis-1,3-Dichloropropene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Ethyl benzene	30	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Toluene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Trichloroethene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	2241 09/30/92	20	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	2241 09/30/92	20	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	1100	mg/l	1100 09/24/92	20	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLF

Quality Assurance for the SET with Sample 221090

• • • • • • • • • •		• • • • •	• • • • • •			• • • • • • •			
Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
			Total	Petroleum	Hydrocar	bons			
	Blank	ND	MG/KG				1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

BROMOFLUOROBENZENE

Ion Abundance Criteria



Analytical Chemistry • Utility Operations

11/05/92

221090 Continued

Page 3

	m/z	Min %	Max %	Mass	Actual	Status
٠	50	15.0	40.0	95	16.6	PASS
	75	30.0	60.0	95	49.8	PASS
	95	100.0			100.0	PASS
	96	5.0	9.0	95	6.8	PASS
	173		2.0	174	0.4	PASS
	174	50.0		95	96.2	PASS
	175	5.0	9.0	174	7.9	PASS
	176	95.0	101.0	174	98.3	PASS
	177	5.0	9.0	176	7.1	PASS

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B08 Hot F. O.

Collected By: JPJ

Date & Time Taken:

09/16/92 1750

Other Data: Tinker AFB

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221089 Received: 09/18/92 Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	200	ug/l	1636 09/25/92	100	EPA Method 8240	PM
Acrolein	ND	ug/{	1636 09/25/92	10000	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1636 09/25/92	10000	EPA Method 8240	PM
Benzene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Bromoform	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Bromomethane	ND	ug/l	1636 09/25/92	1000	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Chloroethane	ND	ug/l	1636 09/25/92	1000	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	1636 09/25/92	1000	EPA Method 8240	PM
Chloroform	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Chloromethane	ND	ug/l	1636 09/25/92	1000	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

221089 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/l	1636 09/25/92	100	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Toluene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Trichloroethene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1636 09/25/92	1000	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1636 09/25/92	1000	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Total Petroleum Hydrocarbons	690	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B09

Collected By:

JPJ

Date & Time Taken:

09/18/92 1220

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221307 Received: 09/21/92

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/l	1323 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1323 09/30/92	100	EPA Method 8240	PM
Benzene	10	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/l	1323 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/l	1323 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	1323 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/l	1323 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221307 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/l	1323 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	6.9	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1323 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1323 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	50	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221307

Sample #	Description	Result	Units Total	Dup/Std Value Petroleum	•	Percent rbons	Time	Date	Ву
	Blank	ND	MG/KG		_		1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

BROMOFLUOROBENZENE

Ion Abundance Criteria



Analytical Chemistry • Utility Operations

221307 Continued

Page 3

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	8.2	PASS
173		2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS
177	5.0	9.0	176	7.3	PASS

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B10

Collected By: JPJ

J

Date & Time Taken:

09/18/92 1200

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221304 Received: 09/21/92 Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/l	1217 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1217 09/30/92	100	EPA Method 8240	PM
Benzene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/l	1217 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/l	1217 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	·ND	ug/l	1217 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/l	1217 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	₽M
1,1-Dichloroethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221304 Continued

Page 2

P121/2000			2112 - 112 - 22		V.T.T.LO.D.	511
PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	11	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/l	1217 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	FH
cis-1,3-Dichloropropene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/(1217 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	34	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1217 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1217 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	ND	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221304

							• • • • • • • •		
Sample #	Description	Result	Units Total	Dup/Std Value Petroleum	•	Percent rbons	Time	Date	By
	Blank	ND	MG/KG				1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

BROMOFLUOROBENZENE

Ion Abundance Criteria



Analytical Chemistry • Utility Operations

11/05/92

221304 Continued

Page 3

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	16.6	PASS
75	30.0	60.0	95	49.8	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	6.8	PASS
173	•••	2.0	174	0.4	PASS
174	50.0		95	96.2	PASS
175	5.0	9.0	174	7.9	PASS
176	95.0	101.0	174	98.3	PASS
177	5.0	9.0	176	7.1	PASS

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

NTA-B11

Collected By:

JPJ

Date & Time Taken:

09/18/92 1230

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221305 Received: 09/21/92

PARAMETER RESULTS UNITS ANALYZED EOL METHOD BY Xylenes nd ug/l 1248 09/30/92 5.0 EPA Method 8240 PM Acrolein ND 1248 09/30/92 100 EPA Method 8240 ug/l DM Acrylonitrile ND 1248 09/30/92 ug/l 100 EPA Method 8240 PM Benzene ND ug/l 1248 09/30/92 5.0 EPA Method 8240 Bromoform ND 1248 09/30/92 ug/l 5.0 EPA Method 8240 Bromomethane ND ug/l 1248 09/30/92 EPA Method 8240 10 Carbon Tetrachloride ND ug/l 1248 09/30/92 5.0 EPA Method 8240 PM Chlorobenzene ND 1248 09/30/92 ug/l 5.0 EPA Method 8240 PM Chloroethane ND ug/l 1248 09/30/92 10 EPA Method 8240 PM 2-Chloroethylvinyl ether ND ug/l 1248 09/30/92 10 EPA Method 8240 PM Chloroform ND ug/l 1248 09/30/92 5.0 EPA Method 8240 Chloromethane ND ug/l 1248 09/30/92 10 EPA Method 8240 Dibromochloromethane ND ug/l 1248 09/30/92 5.0 EPA Method 8240 Bromodichloromethane ND ug/l 1248 09/30/92 5.0 EPA Method 8240 PM 1,1-Dichloroethane ND ug/l 1248 09/30/92 5.0 EPA Method 8240 PM 1,2-Dichloroethane ND 1248 09/30/92 ug/l 5.0 EPA Method 8240 PM 1,1-Dichloroethene ND ug/l 1248 09/30/92 5.0 EPA Method 8240 PM



Analytical Chemistry • Utility Operations

221305 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	B
trans-1,2-Dichloroethene	33	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/l	1248 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PN
cis-1,3-Dichloropropene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	Pi
Ethyl benzene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PI
Methylene Chloride	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	Pi
1,1,2,2-Tetrachloroethane	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	P
Tetrachloroethene	6.4	ug/l	1248 09/30/92	5.0	EPA Method 8240	P
Toluene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	P
1,1,1-Trichloroethane	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	P
1,1,2-Trichloroethane	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	P
Trichloroethene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	P
Trichlorofluoromethane	ND	ug/l	1248 09/30/92	10	EPA Method 8240	P
Vinyl Chloride	ND	ug/l	1248 09/30/92	10	EPA Method 8240	P
trans-1,3-Dichloropropene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	P
Total Petroleum Hydrocarbons	ND	mg/l	1100 09/24/92	10	EPA Method 418.1	T
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	P

Quality Assurance for the SET with Sample 221305

Sample #	Description	Result	Units Total	Dup/Std Value Petroleum	•	Percent rbons	Time	Date	Ву
	Blank	ND	MG/KG		_		1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

BROMOFLUOROBENZENE

Ion Abundance Criteria



Analytical Chemistry • Utility Operations

11/05/92

221305 Continued

Page 3

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	8.2	PASS
173		2.0	174	0.2	PASS
174	50.0	•••	95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS
177	5.0	9.0	176	7.3	PASS

I certify that the results were generated using the above specified methods.

APPENDIX C

ANALYTICAL RESULTS FROM SOIL SAMPLES FROM FUEL PURGE AREA



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B01-SS1 @1'

Collected By:

JPJ

Date & Time Taken:

09/23/92 1115

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data:

1 -- Unpreserved Plastic/Glass (00)

1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number:

221681

Received: 09/25/92

PARAMETER RESULTS UNITS ANALYZED EQL METHOD BY Total Sonic Extr. W/Hex Exch. 30->1 1946 09/30/92 a->ml EPA Method 3550 LM Hydrocarbon Sonication Extract. Completed 1630 09/29/92 EPA Method 3550 *MOD CRH Phenols 5.0 mg/kg 1800 10/02/92 EPA Method 420.1 **WMB** Phenol Distillation DISTILLED 2100 09/29/92 EPA Method 420.1 KC Naphthalene mg/kg 2135 09/30/92 0.05 EPA Method 610 KΒ 2-Methylnaphthalene 15 2135 09/30/92 0.05 EPA Method 610 mg/kg KΒ Acrolein ND 0420 10/28/92 100 EPA Method 8240 ug/kg Acrylonitrile ug/kg 0420 10/28/92 100 EPA Method 8240 PM Benzene 0420 10/28/92 EPA Method 8240 ug/kg 5.0 Bromoform 0420 10/28/92 5.0 EPA Method 8240 ug/kg Bromomethane ug/kg 0420 10/28/92 10 EPA Method 8240 Carbon Tetrachloride ug/kg 0420 10/28/92 5.0 EPA Method 8240 PM Chlorobenzene EPA Method 8240 ug/kg 0420 10/28/92 5.0 PM Chloroethane ug/kg 0420 10/28/92 10 EPA Method 8240 PM 2-Chloroethylvinyl ether ND ug/kg 0420 10/28/92 10 EPA Method 8240 PM Chloroform ND ug/kg 0420 10/28/92 5.0 EPA Method 8240 PM Chloromethane ND 0420 10/28/92 10 EPA Method 8240 PM ug/kg



Analytical Chemistry • Utility Operations

221681 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dibromochloromethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	0420 10/28/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Ethyl benzene	110	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Toluene	98	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0420 10/28/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0420 10/28/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Xylenes	250	ug/kg	0420 10/28/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	5600	mg/kg	1000 09/30/92	100	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221681

Sample #

Description Result Units Dup/Std Value Spk Conc.

Time Date



Analytical Chemistry • Utility Operations

11/05/92

221681 Continued

Page 3

Sample #	Description	Result	Units	Dup/Std Value Spk Cond	. Percent	Time	Date	Ву
•	Blank	Complete	d			1630	09/29/92	CRH
221598	Duplicate	Complete	d	Completed	100	1630	09/29/92	CRH
				Phenols				
	Blank	<.02	mg/l			1800	10/02/92	WMB
	Standard	.050	mg/l	.050	100	1800	10/02/92	WMB
221509	Duplicate	5	mg/kg	5	100	1800	10/02/92	₩MB
			Total	Petroleum Hydro	carbons			•
	Blank	ND	MG/KG			1000	09/30/92	TES
	Standard	50	PPM	50	100	1000	09/30/92	TES
221598	Duplicate	54	MG/KG	59	109	1000	09/30/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount	
Naphthalene	ND(.05)	mg/l
2-Methylnaphthalene	ND(.05)	mg/l

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-03-SS1 @5'

Collected By:

Date & Time Taken:

09/11/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222883 Received: 10/09/92

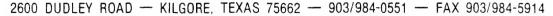
Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	780	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222883

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
•			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEQ
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.





Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-03-SS2 @10'

Collected By:

Client

Date & Time Taken: 09/11/92 1200

Bottle Data: 1 -- Other (13)

Client: ARS1 Lab Sample Number: 221301 Received: 09/21/92

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	2223 09/25/92		EPA Method 3550	LM
Xylenes	nd	ug/kg	1727 09/30/92	5.0	EPA Method 8240	₽M
Hydrocarbon Sonication Extract.	Completed		1100 09/25/92		EPA Method 3550 *MOD	PLH
Phenols	ND	mg/kg	1700 09/30/92	.04	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1800 09/29/92		EPA Method 420.1	KC
Acenaphthene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Acrolein	ND	ug/kg	1727 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1727 09/30/92	100	EPA Method 8240	PM
Aldrin	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Benzene	10	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Benzidine	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Benzo(k)fluoranthene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Bromoform	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1727 09/30/92	10	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1727 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1727 09/30/92	10	EPA Method 8240	PA
Chloroform	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PN
Chloromethane	ND	ug/kg	1727 09/30/92	10	EPA Method 8240	P
2-Chloronaphthalene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	P
Chrysene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	P
Dibenzo(a,h)anthracene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	Pł
Dibromochloromethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	P
1,3-Dichlorobenzene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	P!
1,2-Dichlorobenzene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PI
1,4-Dichlorobenzene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	P
3,3'-Dichlorobenzidine	ND	ug/kg	1141 09/30/92	670	EPA Method 8270	Pi



Analytical Chemistry • Utility Operations

11/05/92

221301 Continued

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Bromodichloromethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	P M
1,2-Dichloroethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM PM
1,1-Dichloroethene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1727 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	РМ
1,2-DPH (as azobenzene)	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Ethyl benzene	120	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Fluoranthene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	РМ
Hexachlorocyclopentadiene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92

221301 Continued

Page 4

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Methylene Chloride	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Naphthalene	1200	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
1,1,1-Trichloroethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1727 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1727 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
2-Methylnaphthalene	3400	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Total Petroleum Hydrocarbons	5300	mg/kg	1300 09/29/92	100	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221301

Sample #	Description	Result	Units	Dup/Std Value Spk Conc. Phenols	Percent	Time	Date	Ву
	Blank	<.02	mg/l			1700	09/30/92	WMB
	Standard	.052	mg/l	.050	104	1700	09/30/92	WMB
221301	Duplicate	ND	mg/l	ND	100	1700	09/30/92	WMB



Analytical Chemistry • Utility Operations

11/05/92

221301 Continued

Page 5

Sample #	Description	Result	Units Total	Dup/Std Value Petroleum	Percent rbons	Time	Date	Ву
	Blank	ND	MG/KG		 	1300	09/29/92	TES
	Blank	ND	MG/KG			1300	09/29/92	TES
	Blank	ND	MG/L			1300	09/29/92	TES
	Standard	48	PP M	50	104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000	116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000	111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700	110	1300	09/29/92	TES

DECAFLUOROTRIPHENYLPHOSPHINE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
51	30.0	60.0	198	31.9	PASS
68	•••	2.0	69	1.2	PASS
69				44.4	PASS
70	• • •	2.0	69	0.9	PASS
127	40.0	60.0	198	47.1	PASS
197		1.0	198	0.0	PASS
198	100.0			100.0	PASS
199	5.0	9.0	198	6.5	PASS
275	10.0	30.0	198	21.3	PASS
365	1.0		198	2.5	PASS
441		100.0	443	83.2	PASS
442	40.0		198	59.3	PASS
443	17.0	23.0	442	18.0	PASS

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	8.2	PASS
173		2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS



Analytical Chemistry • Utility Operations

11/05/92

221301 Continued

Page 6

177

5.0

9.0

176 7.3

PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President

₹ €

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-03-SS3 @15'

Collected By:

Date & Time Taken:

09/11/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222884 Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	28	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222884

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG		_		0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: FPA-04-SS1 @5'

Collected By:

JPJ

Date & Time Taken:

09/22/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222877 Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	100	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222877

Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
•		Total	Petroleum	Hydroca:	rbons			
Blank	ND	MG/KG				0900	10/13/92	TEO
Standard	155	PPM	150		103	0900	10/13/92	TEO
Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO
	Blank Standard Duplicate Duplicate Duplicate	Blank ND Standard 155 Duplicate 120 Duplicate 29 Duplicate 34	Blank ND MG/KG Standard 155 PPM Duplicate 120 MG/KG Duplicate 29 MG/KG Duplicate 34 MG/KG	Blank ND MG/KG Standard 155 PPM 150 Duplicate 120 MG/KG 140 Duplicate 29 MG/KG 27 Duplicate 34 MG/KG 32	Total Petroleum Hydroca: Blank ND MG/KG Standard 155 PPM 150 Duplicate 120 MG/KG 140 Duplicate 29 MG/KG 27 Duplicate 34 MG/KG 32	Total Petroleum Hydrocarbons Blank ND MG/KG Standard 155 PPM 150 103 Duplicate 120 MG/KG 140 115 Duplicate 29 MG/KG 27 107 Duplicate 34 MG/KG 32 106	Total Petroleum Hydrocarbons Blank ND MG/KG 0900 Standard 155 PPM 150 103 0900 Duplicate 120 MG/KG 140 115 0900 Duplicate 29 MG/KG 27 107 0900 Duplicate 34 MG/KG 32 106 0900	Total Petroleum Hydrocarbons Blank ND MG/KG 0900 10/13/92 Standard 155 PPM 150 103 0900 10/13/92 Duplicate 120 MG/KG 140 115 0900 10/13/92 Duplicate 29 MG/KG 27 107 0900 10/13/92 Duplicate 34 MG/KG 32 106 0900 10/13/92

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-04-SS2 @10'

Collected By:

Date & Time Taken:

09/22/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222878 Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EOL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92	-1-	EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	130	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222878

Sample #	Description	Result	Units Total	Dup/Std Value Petroleum	Percent bons	Time	Date	Ву
	Blank	ND	MG/KG			0900	10/13/92	TEO
	Standard	155	PP M	150	103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140	115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27	107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32	106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17	161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-04-SS3 @15'

Collected By:

Date & Time Taken:

09/22/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222879 Received: 10/09/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	22	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222879

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
,			Total	Petroleum	Hydrocan	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-05-SS1 @5'

Collected By:

JPJ

Date & Time Taken:

09/22/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222880

Received: 10/09/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	22	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222880

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
			Total	Petroleum	Hydroca:	rbons			
	Blank	ND	MG/KG		_		0900	10/13/92	TEO
	Standard	155	PP M	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-05-SS2 @10'

Collected By:

09/22/92

Date & Time Taken:

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222881 Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	29	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222881

Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
·		Total	Petroleum	Hydrocan	rbons			
Blank	ND	MG/KG				0900	10/13/92	TEO
Standard	155	PPM	150		103	0900	10/13/92	TEO
Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
Duplicate	32	MG/KG	17	4	161	0900	10/13/92	TEO
•								

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-05-SS3 @15'

Collected By:

Date & Time Taken:

09/22/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222882 Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	12	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222882

Sample #	Description	Result	Units	Dup/Std Value	•	Percent	Time	Date	Ву
			Total	Petroleum	Hydroca:	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: FPA-G11A-SS1 Grab from .5'-1'

Collected By:

Jack Jemsek

Date & Time Taken: 09/14/92 1700

Other Data: Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Client: ARS1 Lab Sample Number: 220911 Received: 09/16/92

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->mi	2200 09/17/92		EPA Method 3550	DDM
Hydrocarbon Sonication Extract.	Completed		1100 09/17/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1345 09/17/92	1	EPA Method 420.1	WMB
Phenol Distillation	Distilled		1045 09/17/92		EPA Method 420.1	WMB
Acenaphthene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Acrolein	ND	ug/kg	1432 09/17/92	500	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1432 09/17/92	500	EPA Method 8240	PM
Aldrin	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Benzidine	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92

220911 Continued

	•				•	
PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Bis(2-chloroethyl)ether	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Bromoform	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1432 09/17/92	50	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
4-Chloro-3-methylphenol	ND	ug/kg	2357 09/17/92	670	EPA Method 8270	PM
Chlorobenzene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1432 09/17/92	50	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1432 09/17/92	50	EPA Method 8240	PM
Chloroform	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1432 09/17/92	50	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
2-Chlorophenol	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

220911 Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
3,3'-Dichlorobenzidine	ND	ug/kg	2357 09/17/92	670	EPA Method 8270	PM
Bromodichloromethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
2,4-Dichlorophenol	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Dichlorodiflouromethane	ND	ug/kg	1432 09/17/92	5.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
2,4-Dimethylphenol	ND	ug/k g	2357 09/17/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
2-Methyl-4,6-dinitrophenol	ND	ug/kg	2357 09/17/92	1700	EPA Method 8270	PM
2,4-Dinitrophenol	ND	ug/kg	2357 09/17/92	1700	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Ethyl benzene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Fluoranthene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

220911 Continued

	•					
PARAMETER Hexachlorobutadiene	RESULTS ND	UNITS ug/kg	ANALYZED 2357 09/17/92	EQL 330	METHOD EPA Method 8270	BY PM
Hexachlorocyclopentadiene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM -
Indeno(1,2,3-cd)pyrene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM ~
Methylene Chloride	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Naphthalene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
2-Nitrophenol	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
4-Nitrophenol	ND	ug/kg	2357 09/17/92	1700	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Pentachlorophenol	ND	ug/kg	2357 09/17/92	1700	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Phenol	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Toluene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
1,2,4-Trichlorobenzene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
1,1,1-Trichloroethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

220911 Continued

Page 5

-	PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
	Trichlorofluoromethane	ND	ug/kg	1432 09/17/92	50	EPA Method 8240	PM
	2,4,6-Trichlorophenol	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
-	Vinyl Chloride	ND	ug/kg	1432 09/17/92	50	EPA Method 8240	PM
	trans-1,3-Dichloropropene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
•	Total Petroleum Hydrocarbons	4700	mg/kg	1200 09/17/92	100	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 220911

					• • • • • • • • • • • • • • • • • • •			
Sample #	Description	Result	Units	Dup/Std Value Spk Conc.	Percent	Time	Date	Ву
				Phenols				
	Blank	<.02	mg/l			1345	09/17/92	WMB
	Standard	.048	mg/l	.050	104	1345	09/17/92	WMB
220832	Duplicate	ND	mg/l	ND	100	1345	09/17/92	WMB
	•		Total	Petroleum Hydroca	rbons			
	Blank	ND	MG/KG	_		1200	09/17/92	TES
	Standard	52	PPM	50	104	1200	09/17/92	TES
220811	Duplicate	1000	MG/KG	1200	118	1200	09/17/92	TES
	•							

DECAFLUOROTRIPHENYLPHOSPHINE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
51	30.0	60.0	198	39.1	PASS
68		2.0	69	1.4	PASS
69		•••		49.1	PASS
70		2.0	69	0.0	PASS
127	40.0	60.0	198	47.2	PASS
197		1.0	198	0.0	PASS
198	100.0	•••		100.0	PASS
199	5.0	9.0	198	7.0	PASS
275	10.0	30.0	198	18.0	PASS
365	1.0		198	1.9	PASS
441		100.0	443	76.9	PASS
442	40.0		198	49.0	PASS
443	17.0	23.0	442	19.1	PASS

BROMOFLUOROBENZENE



Analytical Chemistry • Utility Operations

220911 Continued

Page 6

_		
Ion	Abundance	Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	15.2	PASS
75	30.0	60.0	95	48.9	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	7.7	PASS
173		2.0	174	0.1	PASS
174	50.0		95	63.8	PASS
175	5.0	9.0	174	6.8	PASS
176	95.0	101.0	174	97.0	PASS
177	5.0	9.0	176	7.2	PASS

Volatiles-In addition to the reported list the following compounds were tentatively identified in approximate concentrations:

Analyzed By PM On 09/17/92-1432

Compound	Concentration (ppb)
Methylcyclohexane	1300
2-Methylheptane	1000
Trimethylhexane	1000
Dimethylcyclohexane	1500
Octane	1500
6-Methyl-2-Undecene	750
1,1,3-Trimethylheptane	4000
7-Methyl-1-undecene	3000
2,3,5-Trimethylheptane	1500
Trimethyldecane	8000
Dimethyl Benzene	1000
Dimethylheptadecane	2000
1-Tridecanol	2000
1-(Methylethyl) Cyclohexane	4000
4-Methyl Nonane	5000
3-Methyl Nonane	2000
1,4-Dimethylcyclooctane	4000
2-MethylNaphthalene	930

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-11-SS1 @1.5'

Collected By:

Date & Time Taken:

09/15/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222873

Received: 10/09/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	22000	mg/kg	0900 10/13/92	500	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222873

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
,			Total	Petroleum	Hydrocal	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-11-SS2 @5'

Collected By:

JPJ

Date & Time Taken:

09/15/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222885 Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EOL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed	ONTIS	1700 10/12/92	БÕП	EPA Method 3550 *MOD	TEO
nyar ocar borr convection extract.	Compressed		1700 10/12/72		EFA METHOD 3330 MOD	, 20
Total Petroleum Hydrocarbons	490	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222885

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc. Percent	Time	Date	Ву
			Total	Petroleum	Hydrocarbons			
	Blank	ND	MG/KG			0900	10/13/92	TEO
	Standard	155	PPM	150	103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140	115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27	107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32	106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17	161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: FPA-11-SS3 @ 9' "Hot"

Collected By: JPJ

Date & Time Taken:

09/15/92 1247

Other Data: Tinker AFB

Bottle Data: 1 -- Other (13)

Lab Sample Number: 221077 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	5->1	g->ml	1250 09/25/92		EPA Method 3550	DDM
Xylenes	nd	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1345 09/24/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2000 09/22/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1005 09/30/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1005 09/30/92	.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1816 09/29/92	100	EPA Method 8240	P₩
Acrylonitrile	ND	ug/kg	1816 09/29/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1816 09/29/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1816 09/29/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1816 09/29/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221077 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1816 09/29/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1816 09/29/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Ethyl benzene	32	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1816 09/29/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1816 09/29/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	4200	mg/kg	1300 09/21/92	100	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221077

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date By **Phenols**



Analytical Chemistry • Utility Operations

11/05/92 221077 Continued

Page 3

	Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	·	Blank	<.02	mg/l				1345	09/24/92	WMB
		Standard	.050	mg/l	.050		100	1345	09/24/92	WM8
	221457	Duplicate	ND	mg/l	ND		100	1345	09/24/92	WMB
4		·		Total	Petroleum	Hydroca	rbons			
		Blank	ND	MG/KG				1300	09/21/92	TES
		Standard	50	PPM	50		100	1300	09/21/92	TES
	221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
-	221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount		
Naphthalene	ND(.05)	mg/l	
2-Methylnaphthalene	ND(.05)	mg/l	

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	8.2	PASS
173		2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS

Continued



Analytical Chemistry • Utility Operations

11/05/92

221077 Continued

Page 4

177

5.0

9.0

176

7.3

PASS

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-11-SS4 @15'

Collected By:

Date & Time Taken:

09/15/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222886

Received: 10/09/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	33	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222886

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	. 17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: FPA-12-SS1 @5'

Collected By:

Date & Time Taken:

09/15/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222887 Received: 10/09/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	220	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222887

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: FPA-12-SS2 @ 10'

Collected By: JPJ

Date & Time Taken:

09/15/92 1015

Other Data: Tinker AFB

Bottle Data: 1 -- Other (13)

Lab Sample Number: 221079 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	1718 09/25/92		EPA Method 3550	DDM
Xylenes	nd	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	1	EPA Method 420.1	₩MB
Phenol Distillation	DISTILLED		1700 09/23/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1640 09/30/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1640 09/30/92	.05	EPA Method 610	КВ
Acrolein	ND	ug/kg	1333 09/29/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1333 09/29/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1333 09/29/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1333 09/29/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1333 09/29/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221079 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1333 09/29/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1333 09/29/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Ethyl benzene	13	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
,1,2,2-Tetrachloroethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
etrachloroethene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
oluene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
,1,1-Trichloroethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
,1,2-Trichloroethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
richloroethene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
richlorofluoromethane	ND	ug/kg	1333 09/29/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1333 09/29/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	790	mg/kg	1300 09/21/92	10	EPA Method 418.1	TE

Quality Assurance for the SET with Sample 221079

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date By



Analytical Chemistry • Utility Operations

221079 Continued

Page 3

_										
	Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	·	Blank	<.02	mg/l				1430	09/28/92	WMB
		Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
	221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
44				Total	Petroleum	Hydroca	rbons			
		Blank	ND	MG/KG				1300	09/21/92	TES
		Standard	50	PP M	50		100	1300	09/21/92	TES
_	221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
-	221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount		
Naphthalene	ND(.05)	mg/l	
2-Methylnaphthalene	ND(.05)	mg/l	

BROMOFLUOROBENZENE

Ion Abundance Criteria

	m/z	Min %	Max %	Mass	Actual	Status
-	50	15.0	40.0	95	17.6	PASS
	75	30.0	60.0	95	54.0	PASS
	95	100.0			100.0	PASS
	96	5.0	9.0	95	8.2	PASS
	173		2.0	174	0.2	PASS
	174	50.0		95	90.1	PASS
	175	5.0	9.0	174	7.5	PASS
	176	95.0	101.0	174	95.0	PASS

Continued



Analytical Chemistry • Utility Operations

11/05/92 221079 Continued

Page 4

177

5.0

9.0

176 7.3

PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-12-SS3 @15'

Collected By:

Date & Time Taken:

09/15/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222888 Received: 10/09/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	76	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222888

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
•			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: FPA-13-SS1 @5'

Collected By:

Date & Time Taken:

09/15/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222889 Received: 10/09/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	24	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222889

Sample #	Description	Result	Units	Dup/Std Value		Percent	Time	Date	Ву
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-13-SS2 @10

Collected By:

Date & Time Taken:

09/15/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222890

Received: 10/09/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	76	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222890

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
·	·		Total	Petroleum	Hydrocan	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEC
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO
	-								

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: FPA-13-SS3 @ 15'

Collected By: JPJ

Date & Time Taken:

09/15/92 1445

Other Data: Tinker AFB

Bottle Data: 1 -- Other (13)

Lab Sample Number: 221078 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	1713 09/25/92		EPA Method 3550	DDM
Xylenes	nd	ug/kg	1253 09/29/92	5.0	EPA Method 8240	P M
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1345 09/24/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2000 09/22/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1624 09/30/92	.05	EPA Method 610	КВ
2-Methylnaphthalene	ND	mg/kg	1624 09/30/92	.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1253 09/29/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1253 09/29/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1253 09/29/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1253 09/29/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1253 09/29/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

221078 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1253 09/29/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1253 09/29/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Trichloroethene	19	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1253 09/29/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1253 09/29/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	22	mg/kg	1300 09/21/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221078

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date By



Analytical Chemistry • Utility Operations

221078 Continued

Page 3

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Blank	<.02	mg/l				1345	09/24/92	WMB
	Standard	.050	mg/l	.050		100	1345	09/24/92	WMB
221457	Duplicate	ND	mg/l	ND		100	1345	09/24/92	WMB
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG		_		1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount	
Naphthalene	ND(.05)	mg/l
2-Methylnaphthalene	ND(.05)	mg/l

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0	•••		100.0	PASS
96	5.0	9.0	95	8.2	PASS
173		2.0	174	0.2	PASS
174	50.0		95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS

Continued



Analytical Chemistry • Utility Operations

221078 Continued

Page 4

177

5.0

9.0

176

7.3

PASS

I certify that the results were generated using the above specified methods.

129

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-20-SS1 @5'

Collected By:

Date & Time Taken:

09/26/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222891 Received: 10/09/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	740	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222891

Sample #	Description	Result	Units	Dup/Std Value		Percent	Time	Date	Ву
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-20-SS2 @10'

Collected By:

Date & Time Taken:

09/26/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222892 Received: 10/09/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	190	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222892

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
•	·		Total	Petroleum	Petroleum Hydroca				
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: FPA-20-SS3 @15'

Collected By: JPJ

Date & Time Taken:

09/26/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222893 Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EOL	METHOD	DV
Hydrocarbon Sonication Extract.	Completed	UNIIS	1700 10/12/92	БÕГ	EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	25	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222893

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
			Total	Petroleum	Hydroca	Hydrocarbons			-
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B31-SS1 2.5'-3.5'

Collected By: Date & Time Taken:

JPJ

09/23/92 1220

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221682 Received: 09/25/92

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	1853 09/29/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Phenols	ND	mg/kg	1800 10/02/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2100 09/29/92		EPA Method 420.1	KC
Acenaphthene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Acrolein	ND	ug/kg	0132 10/31/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0132 10/31/92	100	EPA Method 8240	PM
Aldrin	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	GO
Anthracene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Benzene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Benzidine	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	P M
Benzo(a)anthracene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	P M
Benzo(b)fluoranthene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

221682 Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	ВУ
Bis(2-chloroethyl)ether	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1236 11/03/92	3 300	EPA Method 8270	PM .
4-Bromophenyl phenyl ether	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM .
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Bromoform	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0132 10/31/92	10	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0132 10/31/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0132 10/31/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0132 10/31/92	10	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Chrysene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1236 11/03/92	6700	EPA Method 8270	PM
Bromodichloromethane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

221682 Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	ВУ
1,1-Dichloroethane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	₽₩
1,2-Dichloroethane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	NĎ	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	0132 10/31/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Ethyl benzene	1000	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Fluoranthene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Fluorene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Isophorone	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Methylene Chloride	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM



221598

Duplicate

Completed

2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

221682 Continued

Page 4

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	В
Naphthalene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PI
Nitrobenzene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PI
N-nitrosodimethylamine	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	P
N-Nitrosodi-n-propylamine	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	P
N-nitrosodiphenylamine	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	P
Phenanthrene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	P
yrene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	P
,1,2,2-Tetrachloroethane	1000	ug/kg	0132 10/31/92	5.0	EPA Method 8240	P
etrachloroethene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	P
oluene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	P
,2,4-Trichlorobenzene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	Р
,1,1-Trichloroethane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	P
,1,2-Trichloroethane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	Р
richloroethene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	P
richlorofluoromethane	ND	ug/kg	0132 10/31/92	10	EPA Method 8240	Р
inyl Chloride	ND	ug/kg	0132 10/31/92	10	EPA Method 8240	P
rans-1,3-Dichloropropene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	P
-Methylnaphthalene	39000	ug/kg	1236 11/03/92	3 300	EPA Method 8270	Р
ylenes	2000	ug/kg	0132 10/31/92	10	EPA Method 8240	P
otal Petroleum Hydrocarbons	20000	mg/kg	1000 09/30/92	500	EPA Method 418.1	T
Qual	ity Assuranc	e for the s	SET with Samp	le 221	1682	
ample # Description	Result Units Hydrocar	Dup/Std Value S	Spk Conc. Percention Extract.		ime Date	
Blank	Completed				630 09/29/92	

Completed

100

1630

09/29/92

CRH



Analytical Chemistry • Utility Operations

221682 Continued

Page 5

Sample #	Description	Result	Units	Dup/Std Value Spk Conc. Phenols	Percent	Time	Date	Ву
	Blank	<.02	mg/l			1800	10/02/92	WMB
	Standard	.050	mg/l	.050	100	1800	10/02/92	WMB
221509	Duplicate	5	mg/kg	5	100	1800	10/02/92	WMB
	•		Total	Petroleum Hydro	carbons			
	Blank	ND	MG/KG	_		1000	09/30/92	TES
-	Standard	50	PPM	50	100	1000	09/30/92	TES
221598	Duplicate	54	MG/KG	59	109	1000	09/30/92	TES

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B31-SS2 6'

Collected By:

JPJ

Date & Time Taken:

09/23/92

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221683

Received: 09/25/92

Client: ARS1

PARAMETER		RESU	LTS	UNITS	ANALY	ZED	EQL	METHOD	BY
Hydrocarbon So	onication Extract	. Compl	eted		1630 09/2	29/92		EPA Method 3550 *MOD	CRH
Total Petrole	um Hydrocarbons	230		mg/kg	1000 09/3	0/92	10	EPA Method 418.1	TES
	Qual	ity Ass	urand	ce for the	SET with	Sampl	e 221	.683	
Sample #	Description		Units rocal	Dup/Std Value	•	Percent	T	ime Date	Ву
	Blank	Completed					16	530 09/29/92	CRH
221598	Duplicate	Completed		Completed		100	16	630 09/29/92	CRH
		T	otal	Petroleum	Hydrocari	bons			
	Blank	ND	MG/KG		_		10	000 09/30/92	TES
	Standard	50	PPM	50		100	10	000 09/30/92	TES
221598	Duplicate	54	MG/KG	59		109	10	000 09/30/92	TES

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B31-SS3 8'-9'

Collected By:

JPJ

Date & Time Taken:

09/23/92 1220

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data:

1 -- Unpreserved Plastic/Glass (00)

1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221684 Recei

Received: 09/25/92 Client: ARS1

	D D G 17 T M G	TINITEG	ANATURED	FOT	METHOD	BY
PARAMETER	RESULTS	UNITS	ANALYZED	EQL		LM
Total Sonic Extraction	30->1	g->ml	1847 09/29/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Phenols	ND	mg/kg	1800 10/02/92	5	EPA Method 420.1	WMB
Phenol Distillation	Distilled		1400 10/02/92		EPA Method 420.1	WMB
Acenaphthene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Acrolein	ND	ug/kg	0239 10/31/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0239 10/31/92	100	EPA Method 8240	PM
Aldrin	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	GO
Anthracene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Benzidine	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92

221684 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	ВУ
Bis(2-chloroethyl)ether	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM _
Bis(2-chloroisopropyl)ether	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM -
Bis(2-ethylhexyl)phthalate	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Bromoform	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	2155 11/03/92	670	EPA Method 8270	PM
Bromodichloromethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92 221684 Continued

Page 3

	•					
PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
1,1-Dichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	0239 10/31/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Ethyl benzene	300	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Fluoranthene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND ·	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Methylene Chloride	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221684 Continued

Page 4

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Naph thal ene	2600	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM -
N-nitrosodiphenylamine	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	700	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,2,4-Trichlorobenzene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
1,1,1-Trichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
2-Methylnaphthalene	10000	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Xylenes	1200	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	5100	mg/kg	1000 09/30/92	100	EPA Method 418.1	TES

• • • • • • • • •			••••••	• • • • • • • • • • • • • • • • • • •			
Sample #	Description	Result Units	S Dup/Std Value Spk Conc.	Percent	Time	Date	Ву
		Hydroc	arbon Sonication E	xtract.			
	Blank	Completed			1630	09/29/92	CRH
221598	Duplicate	Completed	Completed	100	1630	09/29/92	CRH



Analytical Chemistry • Utility Operations

221684 Continued

Page 5

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	·			Pheno:	ls				
	Blank	<.02	mg/l				1800	10/02/92	WM
	Standard	.050	mg/l	.050		100	1800	10/02/92	WME
221509	Duplicate	5	mg/kg	5		100	1800	10/02/92	WMS
	•		Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				1000	09/30/92	TES
	Standard	50	PPM	50		100	1000	09/30/92	TES
221598	Duplicate	54	MG/KG	59		109	1000	09/30/92	TES

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B31-SS4 @11'

Collected By:

JPJ

Date & Time Taken:

09/23/92 1300

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221687 Received: 09/25/92

Client: ARS1

PARAMETE	R	RES	ULTS	UNITS	ANALY	ZED	EQL	METHO	מכ	BY
Hydrocarbon	Sonication Extract.	Com	pleted		1630 09/2	9/92		EPA Met	thod 3550 *MOD	CRI
Total Petrol	eum Hydrocarbons	110		mg/kg	1000 09/3	0/92	10	EPA Met	thod 418.1	TES
	Qual	ity As	suranc	ce for the	SET with	Sampl	e 221	.687		
Sample #	Description	Result Hy	Units drocar	Dup/Std Value		Percent	Т	ime	Date	В
	Blank	Complete	:d				10	530	09/29/92	С
221598	Duplicate	Complete	ed	Completed		100	10	530	09/29/92	C
221598	Duplicate	Complete		Completed Petroleum	Hydrocarl		14	630	09/29/92	C
221598	Duplicate Blank	Complete		,	Hydrocarl				09/29/92	
221598	i		Total	,	Hydrocarl		10	000		CI TI

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B31-SS4A @13'

Collected By:

JPJ

ND

ND

ND

Date & Time Taken:

09/23/92 1344

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data:

2-Chloroethylvinyl ether

Chloroform

Chloromethane

1 -- Unpreserved Plastic/Glass (00)

1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221690 Received: 09/25/92

BY METHOD RESULTS UNITS ANALYZED EQL PARAMETER EPA Method 3550 LM 1835 09/30/92 30->1 g->ml Total Sonic Extr. W/Hex Exch. EPA Method 3550 *MOD CRH 1630 09/29/92 Hydrocarbon Sonication Extract. Completed EPA Method 420.1 WMB 1500 10/05/92 mg/kg Phenols FPA Method 420.1 WMB 1400 10/02/92 Phenol Distillation Distilled 0.05 EPA Method 610 KΒ 1955 09/30/92 mg/kg Naphthalene 0.05 1955 09/30/92 EPA Method 610 KΒ 2-Methylnaphthalene mg/kg EPA Method 8240 0456 10/28/92 100 Acrolein ND ug/kg EPA Method 8240 0456 10/28/92 100 Acrylonitrile ND ug/kg EPA Method 8240 0456 10/28/92 5.0 ND ug/kg Benzene EPA Method 8240 0456 10/28/92 5.0 Bromoform ND ug/kg EPA Method 8240 0456 10/28/92 10 Bromomethane ND ug/kg 0456 10/28/92 5.0 EPA Method 8240 Carbon Tetrachloride ND ug/kg EPA Method 8240 0456 10/28/92 5.0 Chlorobenzene ND ug/kg EPA Method 8240 0456 10/28/92 10 Chloroethane ND ug/kg

ug/kg

ug/kg

ug/kg

0456 10/28/92

0456 10/28/92

0456 10/28/92

10

5.0

10

EPA Method 8240

EPA Method 8240

EPA Method 8240



Analytical Chemistry • Utility Operations

221690 Continued

Page 2

RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	1.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	10	EPA Method 8240	₽ M
ND	ug/kg	0456 10/28/92	10	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
ND	ug/kg	0456 10/28/92	10	EPA Method 8240	PM
180	mg/kg	1000 09/30/92	10	EPA Method 418.1	TES
180	mg/kg	1000 09/30/92	10	EPA Method 418.1	
	ND N	ND ug/kg ND ug/kg	ND	ND	ND

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President 146

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B31-SS5 @16'

Collected By:

Date & Time Taken:

09/23/92

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221696

Received: 09/25/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1630 09/29/92	EQL	METHOD EPA Method 3550 *MOD	BY CRH
Total Petroleum Hydrocarbons	35	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO
			armth com	.]	1606	

Quality Assurance for the SET with Sample 221696

Sample #	Description	Result	Units	Dup/Std Value	•	Percent	Time	Date	Ву
		H	ydroca:	rbon Sonic	ation Ext	tract.			
	Blank	Complete	ed				1630	09/29/92	CRH
221598	Duplicate	Complete	ed	Completed		100	1630	09/29/92	CRH
			Total	Petroleum	Hydrocan	rbons			
	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B31-SS6 @19'

Collected By:

Date & Time Taken:

09/23/92 1320

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221702 Received: 09/25/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EOL	METHOD	ВУ
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92	222	EPA Method 3550 *MOD	CRH
Total Petroleum Hydrocarbons	35	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Sample #	Description	Result I		Dup/Std Value	Spk Conc. Percent ation Extract.	Time	Date	Ву
	Blank	Comple	ted			1630	09/29/92	CRH
221598	Duplicate	Comple	ted	Completed	100	1630	09/29/92	CRH
			Total	Petroleum	Hydrocarbons			
	Blank	ND	MG/L			1200	09/30/92	TSO
	Blank	ND	MG/KG			1200	09/30/92	TSO
	Standard	152	PPM	150	101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930	120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND	300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12	100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B32-SS1 @1'

Collected By:

Date & Time Taken:

JPJ

09/22/92 1530

Other Data: Tinker AFB, Job # 5735

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221512 Received: 09/23/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 09/28/92	EQL	METHOD EPA Method 3550 *MOD	BY BTW
Total Petroleum Hydrocarbons	1900	ma/ka	1300 09/29/92	50	EPA Method 418.1	TES

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
•			Total	Petroleum	Hydrocal	rbons			
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B32-SS2 @6"

Collected By:

Date & Time Taken:

09/22/92 1550

Other Data: Tinker AFB, Job # 5735

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221513 Received: 09/23/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 09/28/92		EPA Method 3550 *MOD	BTW
Total Petroleum Hydrocarbons	2300	mg/kg	1300 09/29/92	50	EPA Method 418.1	TES

Sample #	Description	Result	Units Total	Dup/Std Value Petroleum	•	Percent bons	Time	Date	Ву
	Blank	ND	MG/KG		-		1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B32-SS3 @10'

Collected By:

JPJ

Date & Time Taken:

09/22/92 1600

Other Data: Tinker AFB, Job # 5735

Bottle Data: 1 --

1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

221511

Received: 09/23/92

ANALYZED EQL METHOD BY RESULTS UNITS PARAMETER EPA Method 3550 1944 09/30/92 LM Total Sonic Extr. W/Hex Exch. 30->4 g->ml EPA Method 3550 *MOD Hydrocarbon Sonication Extract. Completed 1700 09/28/92 RTU EPA Method 420.1 UMR 6.0 mg/kg 1800 10/02/92 Phenols EPA Method 420.1 KC 2100 09/29/92 DISTILLED Phenol Distillation EPA Method 610 0.05 KΒ ND mg/kg 2120 09/30/92 Naphthalene 2120 09/30/92 0.05 EPA Method 610 KΒ 2-Methylnaphthalene ND mg/kg 100 EPA Method 8240 PM 0832 10/30/92 ND ug/kg Acrolein EPA Method 8240 PM 0832 10/30/92 100 ug/kg Acrylonitrile 0832 10/30/92 5.0 EPA Method 8240 PM ug/kg ND Benzene EPA Method 8240 PM 0832 10/30/92 5.0 ug/kg Bromoform ND EPA Method 8240 PM 0832 10/30/92 10 ND ug/kg Bromomethane 0832 10/30/92 5.0 EPA Method 8240 PM Carbon Tetrachloride ND ug/kg 0832 10/30/92 5.0 EPA Method 8240 PM ND ug/kg Chlorobenzene 0832 10/30/92 10 EPA Method 8240 Chloroethane ND ug/kg 0832 10/30/92 10 EPA Method 8240 PM 2-Chloroethylvinyl ether ND ug/kg PM 0832 10/30/92 5.0 EPA Method 8240 ug/kg Chloroform PM EPA Method 8240 ug/kg 0832 10/30/92 10 Chloromethane

Analytical Chemistry • Utility Operations

11/05/92

221511 Continued

Page 2

					•	
PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dibromochloromethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM -
1,1-Dichloroethene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	₽₩
Dichlorodiflouromethane	ND	ug/kg	0832 10/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0832 10/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0832 10/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Xylenes	ND	ug/kg	0832 10/30/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	55	mg/kg	1300 09/29/92	10	EPA Method 418.1	TES

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President 152



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B32-SS4 @14'

Collected By:

JPJ

Date & Time Taken:

09/22/92 1620

Other Data: Tinker AFB, Job # 5735

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221514

Received: 09/23/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 09/28/92	EQL	METHOD EPA Method 3550 *MOD	BY CRH
Total Petroleum Hydrocarbons	38	mg/kg	1300 09/29/92	10	EPA Method 418.1	TES

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
,			Total	Petroleum	Hydrocat	rbons			
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B32-SS5 17'-22'

Collected By:

JPJ

Date & Time Taken:

09/22/92 1600

Other Data: Tinker AFB, Job # 5735

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221515 Received: 09/23/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		2300 09/28/92		EPA Method 3550 *MOD	SB
Total Petroleum Hydrocarbons	17	ma/ka	1300 09/29/92	10	EPA Method 418.1	TES

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
			Total	Petroleum	Hydrocar	bons			
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PP M	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B32-SS6 22'-27'

Collected By:

Date & Time Taken:

09/22/92

Other Data: Tinker AFB, Job # 5735

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221516 Received: 09/23/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 2300 09/28/92	EQL	METHOD EPA Method 3550 *MOD	BY SB
Total Petroleum Hydrocarbons	17	mg/kg	1300 09/29/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221516

Sample #	Description	Result	Units Total	Dup/Std Value Petroleum	Spk Conc.	Percent rhons	Time	Date	Ву
	DI amb	N/S		recroream	nyaroca	LDOMS	1700	09/29/92	TEC
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: FPA-B32-SS7 @30'

Collected By:

Date & Time Taken:

09/22/92 1720

Other Data: Tinker AFB, Job # 5735

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221517 Received: 09/23/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 2300 09/28/92	EQL	METHOD EPA Method 3550 *MOD	BY SB
Total Petroleum Hydrocarbons	12	mg/kg	1300 09/29/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221517

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
			Total	Petroleum	Hydrocar	bons			
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B33-SS1 @1'

Collected By:

Date & Time Taken:

09/23/92 1600

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221705 Received: 09/25/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1630 09/29/92	EQL	METHOD EPA Method 3550 *MOD	BY CRH
Total Petroleum Hydrocarbons	500	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
,	•	H	ydroca	rbon Sonica	ation Ext	tract.			
	Blank	Complet	ed				1630	09/29/92	CRH
221598	Duplicate	Complet	ed	Completed		100	1630	09/29/92	CRH
	•		Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B33-SS2 @3.5'

Collected By:

Date & Time Taken:

09/23/92 1610

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221706

Received: 09/25/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1630 09/29/92	EQL	METHOD EPA Method 3550 *MOD	BY CRH
Total Petroleum Hydrocarbons	410	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
		H	ydroca	rbon Sonic	ation Ext	ract.			
	Blank	Complet	ed				1630	09/29/92	CRH
221598	Duplicate	Complet	ed	Completed		100	1630	09/29/92	CRH
			Total	Petroleum	Hydrocar	bons			
	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	T S0
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B33-SS3 7'-8'

Collected By:

JPJ

09/23/92 1620

Other Data:

AFSCAPS Job #5735, Tinker AFB

Bottle Data:

1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

Date & Time Taken:

221708

Received: 09/25/92

BY RESULTS UNITS ANALYZED EQL METHOD PARAMETER EPA Method 3550 LM 1850 09/29/92 30->1 Total Sonic Extraction 1630 09/29/92 EPA Method 3550 *MOD CRH Hydrocarbon Sonication Extract. Completed EPA Method 420.1 WMB 1500 10/05/92 mg/kg Phenols EPA Method 420.1 **WMB** 1400 10/02/92 Distilled Phenol Distillation 330 EPA Method 8270 PM 2226 10/30/92 ug/kg Acenaphthene EPA Method 8270 2226 10/30/92 330 ND ug/kg Acenaphthylene 2226 10/30/92 330 EPA Method 8270 GO ND ug/kg Aldrin 330 EPA Method 8270 PM 2226 10/30/92 ug/kg ND Anthracene 330 EPA Method 8270 PΜ ug/kg 2226 10/30/92 Benzidine ND 2226 10/30/92 330 EPA Method 8270 PM Benzo(a)anthracene ND ug/kg EPA Method 8270 PM 2226 10/30/92 330 ND ug/kg Benzo(a)pyrene EPA Method 8270 2226 10/30/92 330 Benzo(b) fluoranthene ND ug/kg EPA Method 8270 PM 2226 10/30/92 330 ND ug/kg Benzo(ghi)perylene EPA Method 8270 PM 2226 10/30/92 330 Benzo(k)fluoranthene ND ug/kg 330 EPA Method 8270 PM 2226 10/30/92 Bis(2-chloroethyl)ether ND ug/kg EPA Method 8270 PM 2226 10/30/92 330 Bis(2-chloroethoxy)methane ND ug/kg 2226 10/30/92 330 EPA Method 8270 PM Bis(2-chloroisopropyl)ether ND ug/kg



Analytical Chemistry • Utility Operations

11/05/92

221708 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
4-Bromophenyl phenyl ether	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM .
Benzyl butyl phthalate	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	2226 10/30/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Fluoranthene	ND	ug/k g	2226 10/30/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92

221708 Continued

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Indeno(1,2,3-cd)pyrene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Naphthalene	600	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
2-Methylnaphthalene	1500	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Total Petroleum Hydrocarbons	1500	mg/kg	1200 09/30/92	50	EPA Method 418.1	TSO

I certify that the results were generated using the above specified methods.

C H Whiteside Ph.D. President



Analytical Chemistry • Utility Operations

11/03/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B33-SS4

Collected By:

JPJ

Date & Time Taken:

09/23/92 1620

Other Data:

AFSCAPS Job #5735, Tinker AFB 9-10

Bottle Data:

1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

221713

Received: 09/25/92

PARAMETER RESULTS UNITS ANALYZED EOL METHOD BY 1000->1 ml->ml TCLP Liquid-Liquid Extraction 1723 10/07/92 EPA Method 3510 GE TCLP Liq-Liq Extr. W/Hex Exch. 1000->1 ml->ml 2126 10/12/92 EPA Method 3510 LM TCLP ZHE Volatile Extraction 100.0% Sol Completed. 1430 10/01/92 EPA Method 1311 TCLP Extraction SOLID EXT #1 1620 10/02/92 EPA Method 1311 RJH Esterification of Sample Extract Completed. 1300 10/13/92 EPA Method 8150 Hydrocarbon Sonication Extract. Completed 1630 09/29/92 EPA Method 3550 *MOD TCLP Benzene (Reg. Limit 0.5) ND 0609 10/28/92 mg/l 0.005 EPA Method 8240-TCLP TCLP Gamma-BHC (Lindane) (.4) ND mg/l 1030 10/13/92 0.00004 EPA Method 8080-TCLP TCLP Carbon Tetrachloride (.5) ND 0609 10/28/92 0.005 EPA Method 8240-TCLP mg/l TCLP Chlordane (Reg. Limit 0.03) 1030 10/13/92 0.00014 EPA Method 8080-TCLP mg/l KB TCLP Chlorobenzene (Limit 100) 0609 10/28/92 mg/l 0.005 EPA Method 8240-TCLP TCLP Chloroform (Reg. Limit 6.0) 0609 10/28/92 0.005 EPA Method 8240-TCLP ma/i PM TCLP 1,4 Dichlorobenzene: RL 7.5 1223 11/02/92 mg/l 0.01 EPA Method 8270-TCLP GO TCLP 1,2-Dichloroethane (RL .5) 0609 10/28/92 0.005 mg/l EPA Method 8240-TCLP PM TCLP 1,1-Dichloroethene (.7) mg/l 0609 10/28/92 0.005 EPA Method 8240-TCLP PM TCLP 2,4-Dinitrotoluene (.13) mg/l 1223 11/02/92 0.01 EPA Method 8270-TCLP GO TCLP Endrin (Reg. Limit 0.02) ND 1030 10/13/92 0.00006 EPA Method 8080-TCLP KB mg/l



Analytical Chemistry • Utility Operations

221713 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Heptachlor (Limit .008)	ND	mg/l	1030 10/13/92	0.00003	EPA Method 8080-TCLP	KB
TCLP Heptachlor Epoxide (.008)	ND	mg/l	1030 10/13/92	0.00083	EPA Method 8080-TCLP	KB
TCLP Hexachlorobenzene (.13)	ND	mg/t	1223 11/02/92	0.05	EPA Method 8270-TCLP	GO
TCLP Hexachlorobutadiene (.5)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP Hexachlorethane (Limit 3)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP Nitrobenzene (Limit 2)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP Pentachlorophenol (100)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP Tetrachloroethylene (.7)	ND	mg/l	0609 10/28/92	0.005	EPA Method 8240-TCLP	PM
TCLP Toxaphene (Reg. Limit 0.5)	ND	mg/l	1030 10/13/92	0.0024	EPA Method 8080-TCLP	KB
TCLP Trichloroethylene (.5)	ND	mg/t	0609 10/28/92	0.005	EPA Method 8240-TCLP	PM
TCLP 2,4,6-Trichlorophenol (2)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP Vinyl Chloride (.2)	ND	mg/l	0609 10/28/92	0.01	EPA Method 8240-TCLP	PM
TCLP 2,4 D (Reg. Limit 10)	ND	mg/l	1620 10/13/92	0.012	EPA Method 8150-TCLP	KB
TCLP 2,4,5-Trichlorophenol (400)	ND	mg/t	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP 2,4,5-TP (Silvex) (RL 1)	ND	mg/l	1620 10/13/92	0.0017	EPA Method 8150-TCLP	KB
TCLP Cresol (Reg. Limit 1)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP MEK (Reg. Limit 200)	ND	mg/l	0609 10/28/92	0.05	EPA Method 8240-TCLP	PM
TCLP Methoxychlor (RL 10)	ND	mg/l	1030 10/13/92	0.0018	EPA Method 8080-TCLP	КВ
TCLP Pyridine (Reg. Limit 5)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
Total Petroleum Hydrocarbons	850	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO
Metals Digestion TCLP 3010	Digested	a/s	1600 10/06/92		EPA Method 3010	BWP
Metals Digestion - TCLP 7470	Digested	A/S	1000 10/06/92		EPA Method 7470	DKR
TCLP Silver (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.01	EPA Method 6010	GDG
TCLP Arsenic (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.2	EPA Method 6010	GDG



Analytical Chemistry • Utility Operations

11/03/92

221713 Continued

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Barium (Reg. Limit 100.0)	3.9	mg/l	1333 10/10/92	1.0	EPA Method 6010	GDG
TCLP Cadmium (Reg. Limit 1.0)	ND	mg/l	1333 10/10/92	.01	EPA Method 6010	GDG
TCLP Chromium (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.02	EPA Method 6010	GDG
TCLP Mercury (Reg. Limit 0.2)	ND	mg/l	1200 10/18/92	.001	EPA Method 7470	LW
TCLP Lead (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.1	EPA Method 6010	GDG
TCLP Selenium (Reg. Limit 1.0)	ND	mg/l	1333 10/10/92	.2	EPA Method 6010	GDG
Quali	ty Assurance	e for the	SET with Samp	ple 22:	1713	

•

Sample #	Description	Result	Units	Dup/Std Value Spk Conc.	Percent	Time	Date	Ву

Hydrocarbon Sonication Extract. Blank Completed 1630 09/29/92 CRH 221598 Duplicate Completed Completed 1630 09/29/92 CRH Total Petroleum Hydrocarbons Blank ND MG/L 1200 09/30/92 TSO Blank ND MG/KG 1200 09/30/92 TSO Standard 152 PPM 150 101 1200 09/30/92 TSO 221713 Duplicate 760 930 MG/KG 120 1200 09/30/92 TSO 221853 Duplicate 12 MG/KG ND 300 1200 09/30/92 TSO 221872 Duplicate 12 MG/KG 12 1200 09/30/92 TSO TCLP Silver (Reg. Limit 5.0) Blank <.01 mg/l 1333 10/10/92 GDG Blank <.1 mg/l 1333 10/10/92 GDG Standard 2.0 mg/l 2.0 100 10/10/92 GDG 1333 Standard .93 mg/l 1.0 107 1333 10/10/92 GDG Standard .19 mg/l .20 105 1333 10/10/92 GDG Standard 1.0 1.0 100 mg/l GDG 1333 10/10/92





11/03/92

221713 Continued

Page 4

Sample #	Description	Result	Units	S Dup/Std	Value Sp	k Conc.	Percent	Time	Date	Ву
ample #	Standard	2.0	mg/l	2.0	, , , , , , , , , , , , , , , , , , , ,		100	1333	10/10/92	GD
	Standard	1.0	mg/l	1.0			100	1333	10/10/92	GD
	Standard	2.0	mg/l	2.0			100	1333	10/10/92	GD
21125	Duplicate	ND	mg/l	ND			100	1333	10/10/92	GD
20640	Duplicate	ND	mg/l	ND			100	1333	10/10/92	GI
20977	Spike		mg/l		1.	0	86	1333	10/10/92	GI
221125	Spike		mg/l		1.		89	1333	10/10/92	G
221330	Spike		mg/l		1.		91	1333	10/10/92	GI
221713	Spike		mg/l		1.		95	1333	10/10/92	GI
221852	Spike		mg/l		1.		87	1333	10/10/92	GC
221859	Spike		mg/l		1.		87	1333	10/10/92	GE
222105	Spike		mg/l		1.		82	1333	10/10/92	GE
221754	Spike		mg/l		1.		90	1333	10/10/92	GE
221756	Spike		mg/l		1.		97	1333	10/10/92	GE
221757	Spike		mg/l		1.		94	1333	10/10/92	GI
221760	Spike		mg/l		1.		102	1333	10/10/92	GI
221948	Spike		mg/l		1.		93	1333	10/10/92	GI
220640	Spike		mg/l		1.		68	1333	10/10/92	G
220740	Spike		mg/l		1.		51	1333	10/10/92	G
220742	Spike		mg/l		1.		68	1333	10/10/92	G
221362	Spike		mg/l		2.		94	1333	10/10/92	G
221363	Spike		mg/l		2.		91	1333	10/10/92	G
	Sp			Arsenic			5.0)			
	Blank	<.2	mg/l					1333	10/10/92	G
	Blank	<1	mg/l					1333	10/10/92	G
	Standard	11	mg/l	10			110	1333	10/10/92	G
	Standard	5.2	mg/l	5.0			104	1333	10/10/92	G
	Standard	5.5	mg/l	5.0			110	1333	10/10/92	G
	Standard	1.0	mg/l	1.0			100	1333	10/10/92	G
	Standard	5.5	mg/l	5.0			110	1333	10/10/92	G
	Standard	11	mg/l	10			110	1333	10/10/92	G
	Standard	5.4	mg/l	5.0			108	1333	10/10/92	G
	Standard	11	mg/l	10			110	1333	10/10/92	G
	Standard	4.6	mg/l	5.0			108	1333	10/10/92	G
221125	Duplicate	ND	mg/l	ND			100	1333	10/10/92	G
220640	Duplicate	ND	mg/l	ND			100	1333	10/10/92	G
220977	Spike		mg/l		5.	0	107	1333	10/10/92	G
221125	Spike		mg/l		5.		108	1333	10/10/92	G
221330	Spike		mg/l		5.		107	1333	10/10/92	C
221713	Spike		mg/l		5.		106	1333	10/10/92	C
221852	Spike		mg/l		5.		102	1333	10/10/92	0
221859	Spike		mg/l		5.		106	1333	10/10/92	0
222105	Spike		mg/l		5.		108	1333	10/10/92	G
	Spike		mg/l		5.		117	1333	10/10/92	G
//1/74										
221754 221756	Spike		mg/l		5.	0	114	1333	10/10/92	G



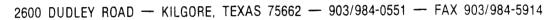
Analytical Chemistry • Utility Operations

11/03/92

221713 Continued

Page 5

Sample #	Description	Result	Units	Dup/Std	Value	Spk Conc.	Percent	Time	Date	Ву
221760	Spike		mg/l	•		5.0	115	1333	10/10/92	GD(
221948	Spike		mg/t			5.0	113	1333	10/10/92	GD
220640	Spike		mg/l			1.0	83	1333	10/10/92	GD
220740	Spike		mg/l			1.0	89	1333	10/10/92	GDO
220742	Spike		mg/l			1.0	76	1333	10/10/92	GDG
221362	Spike		mg/l			1.0	94	1333	10/10/92	GDG
221363	Spike		mg/l			1.0	80	1333	10/10/92	ogo ogo
				Barium (Reg.	Limit		,,,,,	10, 10, 12	G DC
	Blank	<1.0	mg/l		_			1333	10/10/92	GDG
	Blank	<1	mg/l					1333	10/10/92	GDG
	Standard	10	mg/l	10			100	1333	10/10/92	GDG
	Standard	4.9	mg/l	5.0			102	1333	10/10/92	GDG
	Standard	.99	mg/l	1.0			101	1333	10/10/92	GDG
	Standard	4.9	mg/l	5.0			102	1333	10/10/92	GDG
	Standard	10	mg/l	10			100	1333	10/10/92	GDG
	Standard	4.2	mg/l	5.0			117	1333	10/10/92	G D G
	Standard	5.0	mg/l	5.0			100	1333	10/10/92	GDG
	Standard	9.9	mg/l	10			101	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND			100	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND			100	1333	10/10/92	GDG
220977	Spike		mg/l			5.0	96	1333	10/10/92	G D G
221125	Spike		mg/l			5.0	96	1333	10/10/92	G D G
221330	Spike		mg/l			5.0	98	1333	10/10/92	GDG
221713	Spike		mg/l			5.0	94	1333	10/10/92	GDG
221852	Spike		mg/l			5.0	95	1333	10/10/92	GDG
221859	Spike		mg/l			5.0	95	1333	10/10/92	GDG
222105	Spike		mg/l			5.0	96	1333	10/10/92	GDG
221754	Spike		mg/l			5.0	97	1333	10/10/92	GDG
221756	Spike		mg/l			5.0	98	1333	10/10/92	GDG
221757	Spike		mg/l			5.0	99	1333	10/10/92	GDG
221760	Spike		mg/l			5.0	96	1333	10/10/92	GDG
221948	Spike		mg/l			5.0	98	1333	10/10/92	GDG
220640	Spike		mg/l			5.0	86	1333	10/10/92	GDG
220740	Spike		mg/l			5.0	86	1333	10/10/92	GDG
220742	Spike		mg/l			5.0	85	1333	10/10/92	GDG
221362	Spike		mg/l			5.0	90	1333	10/10/92	GDG
221363	Spike		mg/l			5.0	88	1333	10/10/92	GDG
				Cadmium	(Reg				10, 10, 72	400
	Blank	<.01	mg/l				•	1333	10/10/92	G D G
	Blank	<.1	mg/l					1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0			100	1333	10/10/92	GDG
	Standard	1.0	mg/l	1.0			100	1333	10/10/92	GDG
	Standard	.50	mg/l	.50			100	1333	10/10/92	GDG
	Standard	2.4	mg/l	2.5			104	1333	10/10/92	GDG
	Standard	4.7	mg/l	5.0			106	1333	10/10/92	GDG
	Standard	4.0	mg/l	5.0			122	1333	10/10/92	GDG





11/03/92

221713 Continued

Page 6

	Description	Booul +	Units	Dun/Std V	alue Spk (Conc	Percent	Time	Date	В
Sample #	Description	Result 2.4	mg/l	2.5	atue spki		104	1333	10/10/92	G
	Standard Standard	4.7	mg/t	5.0			106	1333	10/10/92	G
224425	Duplicate	.03	mg/t	.03			100	1333	10/10/92	G
221125	•	ND	mg/l	ND			100	1333	10/10/92	G
220640	Duplicate	NU	mg/t	ND	1.0		96	1333	10/10/92	G
220977	Spike Spike		mg/l		1.0		96	1333	10/10/92	G
221125	Spike		mg/l		1.0		97	1333	10/10/92	C
221330	Spike		mg/l		1.0		95	1333	10/10/92	(
221713			mg/l		1.0		95	1333	10/10/92	(
221852	Spike		mg/l		1.0		97	1333	10/10/92	(
221859	Spike		mg/l		1.0		101	1333	10/10/92	(
221754	Spike Spike		mg/l		1.0		98	1333	10/10/92	
221756			mg/l		1.0		96	1333	10/10/92	(
221757 221760	Spike Spike		mg/l		1.0		96	1333	10/10/92	i
	Spike		mg/l		1.0		96	1333	10/10/92	
221948 220640	Spike		mg/l		5.0		81	1333	10/10/92	(
220740	Spike		mg/l		5.0		82	1333	10/10/92	
220742	Spike		mg/l		5.0		82	1333	10/10/92	
221362	Spike		mg/l		5.0		87	1333	10/10/92	(
221363	Spike		mg/l		5.0		88	1333	10/10/92	
22105	Spike		mg/l		1.0		105	1333	10/10/92	
LETOS	opc			Chromium		Limit	5.0)			
	Blank	<.02	mg/l					1333	10/10/92	
	Blank	<.2	mg/l					1333	10/10/92	
	Standard	9.9	mg/l	10			101	1333	10/10/92	
	Standard	5.2	mg/l	5.0			104	1333	10/10/92	
	Standard	.99	mg/l	1.0			101	1333	10/10/92	
	Standard	5.0	mg/l	5.0			100	1333	10/10/92	
	Standard	9.6	mg/l	10			104	1333	10/10/92	1
	Standard	4.4	mg/l	5.0			113	1333	10/10/92	
	Standard	5.0	mg/l	5.0			100	1333	10/10/92	
	Standard	9.5	mg/l	10			105	1333	10/10/92	
221125	Duplicate	ND	mg/l	ND			100	1333	10/10/92	
220977	Spike		mg/l		5.0		100	1333	10/10/92	
221125	Spike		mg/l		5.0		99	1333	10/10/92	
221330	Spike		mg∕l		5.0		100	1333	10/10/92	
221713	Spike		mg/l		5.0		98	1333	10/10/92	
221852	Spike		mg/l		5.0		99	1333	10/10/92	
221859	Spike		mg/l		5.0		101	1333	10/10/92	
222105	Spike		mg/l		5.0		101	1333	10/10/92	
221754	Spike		mg/l		5.0		103	1333	10/10/92	
221756	Spike		mg/l		5.0		104	1333	10/10/92	
221757	Spike		mg/l		5.0		103	1333	10/10/92	
221760	Spike		mg/l		5.0		102	1333	10/10/92	
224242	Spike		mg/l		5.0		103	1333	10/10/92	
221948	op i ke		•		5.0		90	1333	10/10/92	



11/03/92

221713 Continued

Page 7

Sample #	Description	Result	Units	Dup/Std	Value	Spk Conc.	Percent	Time	Date	Ву
220740	Spike		mg/l			5.0	89	1333	10/10/92	GD
220742	Spike		mg/l			5.0	90	1333	10/10/92	GD
221362	Spike		mg/l			5.0	95	1333	10/10/92	GD.0
221363	Spike		mg/l			5.0	94	1333	10/10/92	GDO
		7	CLP M	ercury	(Reg	. Limi	t 0.2)			
	Blank	.001	mg/l	_	_			1200	10/18/92	LW
	Blank	.003	mg/l					1200	10/18/92	LW
	Standard	.010	mg/l	.010			100	1200	10/18/92	LW
	Standard	.010	mg/l	.010			100	1200	10/18/92	LW
	Standard	.010	mg/l	.010			100	1200	10/18/92	LW
	Standard	.009	mg/l	.010			111	1200	10/18/92	LW
	Standard	.009	mg/l	.010			111	1200	10/18/92	LW
	Standard	.025	mg/l	.025			100	1200	10/18/92	LW
	Standard	.010	mg/l	.010			100	1200	10/18/92	ŁW.
	Standard	.011	mg/l	.010			110	1200	10/18/92	LW
	Standard	.010	mg/l	.010			100	1200	10/18/92	LW
	Standard	.009	mg/l	.010			111	1200	10/18/92	LW
	Standard	.010	mg/l	.010			100	1200	10/18/92	LW
	Standard	.010	mg/l	.010			100	1200	10/18/92	LW
	Standard	.010	mg/l	.010			100	1200	10/18/92	LW
221125	Duplicate	ND	mg/l	ND			100	1200	10/18/92	LW
221852	Duplicate	ND	mg/l	ND			100	1200	10/18/92	LW
220640	Spike		mg/l			.010	98	1200	10/18/92	LW
220671	Spike		mg/l			.010	79	1200	10/18/92	LW
220732	Spike		mg/l			.010	103	1200	10/18/92	LW
220733	Spike		mg/l			.010	64	1200	10/18/92	LW
220741	Spike		mg/l			.010	79	1200	10/18/92	LW
220742	Spike		mg/l			.010	109	1200	10/18/92	LW
221362	Spike		mg/l			.010	115	1200	10/18/92	LW
221364	Spike		mg/l			.010	90	1200	10/18/92	LW
220977	Spike		mg/l			.010	92	1200	10/18/92	LW
221125	Spike		mg/l			.010	93	1200	10/18/92	LW
221330	Spike		mg/l			.010	73	1200	10/18/92	LW
221713	Spike		mg/l			.010	76	1200	10/18/92	LW
221852	Spike		mg/i			.010	83	1200	10/18/92	LW
221859	Spike		mg/l			.010	72	1200	10/18/92	LW
221948	Spike		mg/l			.010	113	1200	10/18/92	LW
222105	Spike		mg/l			.010	86	1200	10/18/92	LW
221754	Spike		mg/l			.010	106	1200	10/18/92	LW
221756	Spike		mg/l			.010	104	1200	10/18/92	LW
221757	Spike		mg/l			.010	112	1200	10/18/92	LW
221760	Spike		mg/l			.010	112	1200	10/18/92	LW
			TCLP	Lead	(Reg.	Limit	5.0)			
	Blank	<.1	mg/l		_			1333	10/10/92	GDG
	Blank	<1	mg/l					1333	10/10/92	GDG
	Standard	10	mg/l	10			100	1333	10/10/92	GDG



11/03/92

221713 Continued

Page 8

ample#	Description	Result	Units	Dup/Std Va	alue Spk	Conc.	Percent	Time	Date	E
·	Standard	5.2	mg/l	5.0			104	1333	10/10/92	(
	Standard	1.0	mg/l	1.0			100	1333	10/10/92	(
	Standard	5.0	mg/l	5.0			100	1333	10/10/92	(
	Standard	9.9	mg/l	10			101	1333	10/10/92	- (
	Standard	4.4	mg/l	5.0			113	1333	10/10/92	(
	Standard	5.0	mg/l	5.0			100	1333	10/10/92	
	Standard	9.9	mg/l	10			101	1333	10/10/92	
21125	Duplicate	.67	mg/l	.70			104	1333	10/10/92	
20640	Duplicate	ND	mg/l	ND			100	1333	10/10/92	
20977	Spike		mg/l		5.0		99	1333	10/10/92	
21125	Spike		mg/l		5.0		99	1333	10/10/92	
21330	Spike		mg/l		5.0		101	1333	10/10/92	
21713	Spike		mg/l		5.0		102	1333	10/10/92	
21852	Spike		mg/l		5.0		99	1333	10/10/92	
21859	Spike		mg/l		5.0		100	1333	10/10/92	
22105	Spike		mg/l		5.0		100	1333	10/10/92	
21754	Spike		mg/l		5.0		102	1333	10/10/92	
21756	Spike		mg/l		5.0		104	1333	10/10/92	
21757	Spike		mg/l		5.0		102	1333	10/10/92	
21760	Spike		mg/l		5.0		100	1333	10/10/92	
21948	Spike		mg/l		5.0		102	1333	10/10/92	
20640	Spike		mg/l		5.0		89	1333	10/10/92	
20740	Spike		mg/l		10		88	1333	10/10/92	
20742	Spike		mg/l		5.0		88	1333	10/10/92	
21362	Spike		mg/l		5.0		92	1333	10/10/92	
21363	Spike		mg/l		5.0		91	1333	10/10/92	
1303	op.no			Selenium		Limit				
	Blank	<.2	mg/l					1333	10/10/92	
	Blank	<1	mg/l					1333	10/10/92	
	Standard	10	mg/l	10			100	1333	10/10/92	
	Standard	.91	mg/l	1.0			109	1333	10/10/92	
	Standard	1.1	mg/l	1.0			110	1333	10/10/92	
	Standard	5.4	mg/l	5.0			108	1333	10/10/92	
	Standard	10	mg/l	10			100	1333	10/10/92	
	Standard	.96	mg/t	1.0			104	1333	10/10/92	
	Standard	5.4	mg/l	5.0			108	1333	10/10/92	
	Standard	10	mg/l	10			100	1333	10/10/92	
21125	Duplicate	ND	mg/t	ND			100	1333	10/10/92	
20640	Duplicate	ND	mg/l	ND			100	1333	10/10/92	
20977	Spike	ND	mg/l	ND.	1.0		95	1333	10/10/92	
	Spike		mg/l		1.0		89	1333	10/10/92	
			mg/l		1.0		111	1333	10/10/92	
21125					5.0		95	1333	10/10/92	
21125 21330	Spike		ma/I							
21125 21330 21713	Spike		mg/l							
221125 221330 221713 221852 221859			mg/l mg/l mg/l		1.0 1.0		107 96	1333 1333	10/10/92 10/10/92	



Analytical Chemistry • Utility Operations

221713 Continued

Page 9

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
221754	Spike		mg/l		5.0	102	1333	10/10/92	GD
221756	Spike		mg/l		1.0	115	1333	10/10/92	GD
221757	Spike		mg/l		1.0	102	1333	10/10/92	GD
221760	Spike		mg/l		1.0	96	1333	10/10/92	GD
221948	Spike		mg/l		1.0	110	1333	10/10/92	GD
220640	Spike		mg/l		5.0	89	1333	10/10/92	GD
220740	Spike		mg/l		1.0	89	1333	10/10/92	GD.
220742	Spike		mg/l		1.0	92	1333	10/10/92	GD
221362	Spike		mg/l		1.0	100	1333	10/10/92	GD
221363	Spike		mg/l		1.0	105	1333	10/10/92	GD

Reported results for TCLP analysis are corrected upward to reflect matrix spike recoveries.

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B33-SS5 @13'

Collected By:

Date & Time Taken:

09/23/92 1640

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Received: 09/25/92 Lab Sample Number: 221710

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Acrolein	ND	ug/kg	0251 10/29/92	500	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0251 10/29/92	500	EPA Method 8240	PM
Benzene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Bromoform	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
Chloroform	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM

Analytical Chemistry • Utility Operations

221710 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	0251 10/29/92	5.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Toluene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	₽Ħ
trans-1,3-Dichloropropene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Xylenes	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
Total Petroleum Hydrocarbons	750	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSC

Quality Assurance for the SET with Sample 221710

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
		H	ydroca:	rbon Sonic	ation Ext	tract.			
	Blank	Comple	ted				1630	09/29/92	CRH
221598	Duplicate	Comple	ted	Completed		100	1630	09/29/92	CRH
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	150
			/	1					

ing the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B33-SS6 17'-

Collected By:

JPJ

Date & Time Taken:

09/23/92 1645

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221711 Received: 09/25/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1630 09/29/92	EQL	METHOD EPA Method 3550 *MOD	BY CRH
Total Petroleum Hydrocarbons	47	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Sample #	Description	Result	Units	Dup/Std Value	•	Percent	Time	Date	By
		H;	ydroca:	rbon Sonica	ation Ex	tract.			
	Blank	Complet	ed				1630	09/29/92	CRH
221598	Duplicate	Complet	ed	Completed		100	1630	09/29/92	CRH
221370				Petroleum	Hydroca	rbons			
	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B41-SS1 4'-5' "hot"

Collected By:

JPJ

Date & Time Taken:

09/22/92 0930

Other Data: Tinker AFB, Job # 5735

Bottle Data:

1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

221510

Received: 09/23/92

PARAMETER RESULTS UNITS ANALYZED EOL METHOD BY Total Sonic Extraction 30->1 g->ml 2225 09/25/92 EPA Method 3550 LM Total Sonic Extr. W/Hex Exch. 30->1 g->ml 1502 09/30/92 EPA Method 3550 DDM Hydrocarbon Sonication Extract. Completed 1700 09/28/92 EPA Method 3550 *MOD BTW Phenols ND mg/kg 1800 10/02/92 EPA Method 420.1 **UMB** Phenol Distillation DISTILLED 2100 09/29/92 EPA Method 420.1 KC Naphthalene 2 mg/kg 1900 09/30/92 0.05 EPA Method 610 ΚB 2-Methylnaphthalene .3 mg/kg 1900 09/30/92 0.05 EPA Method 610 KΒ Acenaphthene 1748 11/04/92 EPA Method 8270 ug/kg 330 PM Acenaphthylene 1748 11/04/92 EPA Method 8270 ug/kg 330 PM Acrolein ug/kg 0325 10/29/92 500 EPA Method 8240 PM Acrylonitrile EPA Method 8240 ug/kg 0325 10/29/92 500 PM Anthracene ug/kg 1748 11/04/92 330 EPA Method 8270 PM Benzene EPA Method 8240 ND ug/kg 0325 10/29/92 25 PM Benzidine ug/kg 1748 11/04/92 330 EPA Method 8270 PM Benzo(a)anthracene 1748 11/04/92 330 EPA Method 8270 ug/kg PM ND 1748 11/04/92 Benzo(a)pyrene ug/kg 330 EPA Method 8270 PM Benzo(b)fluoranthene ND 1748 11/04/92 330 EPA Method 8270 ug/kg PM



Analytical Chemistry • Utility Operations

221510 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Benzo(ghi)perylene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1748 11/04/92	3 30	EPA Method 8270	PM
Bromoform	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
Chloroform	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92

221510 Continued

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
3,3'-Dichlorobenzidine	ND	ug/kg	1748 11/04/92	670	EPA Method 8270	PM
Bromodichloromethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM .
1,2-Dichloroethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	0325 10/29/92	5.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1748 11/04/92	33 0	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Ethyl benzene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Fluoranthene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1748 11/04/92	3 30	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	РМ
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92 221510 Continued

Page 4

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	ВУ
Isophorone	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Methylene Chloride	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Naphthalene	350	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
foluene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
1,1,1-Trichloroethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
2-Methylnaphthalene	770	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Xylenes	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
Total Petroleum Hydrocarbons	210	mg/kg	1300 09/29/92	10	EPA Method 418.1	TE

Quality Assurance for the SET with Sample 221510

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date By



Analytical Chemistry • Utility Operations

221510 Continued

Page 5

									
Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
•	Blank	<.02	mg/l				1800	10/02/92	WMB
	Standard	.050	mg/l	.050		100	1800	10/02/92	WMB
221509	Duplicate	5	mg/kg	5		100	1800	10/02/92	WMB
			Total	Petroleum	Hydroca	rbons			~
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount		
Naphthalene	ND(.05)	mg/l	
2-Methylnaphthalene	ND(.05)	mg/l	

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: FPA-B41-SS2 10'-11'

Collected By:

Date & Time Taken:

09/22/92 0930

Other Data: Tinker AFB, Job # 5735

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221509 Received: 09/23/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	1519 09/30/92		EPA Method 3550	MGQ
Hydrocarbon Sonication Extract.	Completed		1700 09/28/92		EPA Method 3550 *MOD	BTV
Phenols	5.0	mg/kg	1800 10/02/92	5	EPA Method 420.1	WME
Phenol Distillation	DISTILLED		1800 09/29/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1830 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1830 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	0437 10/29/92	500	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0437 10/29/92	500	EPA Method 8240	PM
Benzene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Bromoform	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	P M
Bromomethane	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM
Chloroform	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

221509 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	ВУ
Dibromochloromethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM ~
1,2-Dichloroethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM .
trans-1,2-Dichloroethene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	0437 10/29/92	5.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	РМ
cis-1,3-Dichloropropene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Toluene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Xylenes	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM
Total Petroleum Hydrocarbons	6000	mg/kg	1300 09/29/92	100	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221509

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date By



Analytical Chemistry • Utility Operations

221509 Continued

Page 3

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
·	Blank	<.02	mg/l				1800	10/02/92	WMB
	Standard	.050	mg/l	.050		100	1800	10/02/92	WMB
221509	Duplicate	5	mg/kg	5		100	1800	10/02/92	WMB
	•		Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount		
Naphthalene	ND(.05)	mg/l	
2-Methylnaphthalene	ND(.05)	mg/l	

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-42-SS1 @5'

Collected By:

Date & Time Taken:

09/26/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data:

1 -- Other (13)

Lab Sample Number: 222894

Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	130	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222894

Sample #	Description	Result	Units Total	Dup/Std Value Petroleum	 Percent rbons	Time	Date	Ву
	Blank	ND	MG/KG			0900	10/13/92	TEO
	Standard	155	PPM	150	103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140	115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27	107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32	106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17	161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-42-SS2 @10'

Collected By:

Date & Time Taken:

09/26/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222895 Received: 10/09/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	59	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222895

		motal						
		TOLAI	Petroleum	Hydroca	rbons			
Blank	ND	MG/KG				0900	10/13/92	TEO
Standard	155	PPM	150		103	0900	10/13/92	TEO
Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO
	Standard Ouplicate Ouplicate Ouplicate	Standard 155 Duplicate 120 Duplicate 29 Duplicate 34	Standard 155 PPM Duplicate 120 MG/KG Duplicate 29 MG/KG Duplicate 34 MG/KG	Standard 155 PPM 150 Duplicate 120 MG/KG 140 Duplicate 29 MG/KG 27 Duplicate 34 MG/KG 32	Standard 155 PPM 150 Duplicate 120 MG/KG 140 Duplicate 29 MG/KG 27 Duplicate 34 MG/KG 32	Standard 155 PPM 150 103 Suplicate 120 MG/KG 140 115 Suplicate 29 MG/KG 27 107 Suplicate 34 MG/KG 32 106	Standard 155 PPM 150 103 0900 Ouplicate 120 MG/KG 140 115 0900 Ouplicate 29 MG/KG 27 107 0900 Ouplicate 34 MG/KG 32 106 0900	Standard 155 PPM 150 103 0900 10/13/92 Ouplicate 120 MG/KG 140 115 0900 10/13/92 Ouplicate 29 MG/KG 27 107 0900 10/13/92 Ouplicate 34 MG/KG 32 106 0900 10/13/92

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-42-SS3 @15'

Collected By:

Date & Time Taken:

09/26/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222896 Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	- 29	ma/ka	0900 10/13/92	10	EPA Method 418.1	TΕQ

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
			Total	Petroleum	Hydrocan	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEQ
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-47-SS1 @5'

Collected By:

Date & Time Taken:

09/21/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222874 Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EOL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed	01,225	1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	22	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	•		Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-47-SS2 @10'

Collected By:

Date & Time Taken:

09/21/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222875 Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	47	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-47-SS3 @15'

Collected By:

Date & Time Taken:

09/21/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222876 Received: 10/09/92

Client: ARS1

PARAMETER Hydrocarbon Sonication Extract.	RESULTS Completed	UNITS	ANALYZED 1700 10/12/92	EQL	METHOD EPA Method 3550 *MOD	BY TEO
Total Petroleum Hydrocarbons	20	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

APPENDIX D

ANALYTICAL RESULTS FROM WATER SAMPLES FROM FUEL PURGE AREA



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

Collected By:

JPJ

Date & Time Taken:

09/23/92

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221718 Received: 09/25/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Acrolein	ND	ug/l	1342 10/27/92	100	EPA Method 8240	GO
Acrylonitrile	ND	ug/l	1342 10/27/92	100	EPA Method 8240	GO
Benzene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Bromoform	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Bromomethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
Carbon Tetrachloride	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Chlorobenzene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Chloroethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
2-Chloroethylvinyl ether	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
Chloroform	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Chloromethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
Dibromochloromethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Bromodichloromethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1-Dichloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,2-Dichloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1-Dichloroethene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO



Analytical Chemistry • Utility Operations

221718 Continued

Page 2

PARAMETER	}	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dic		ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Dichlorodiflo	uromethane	ND	ug/l	1342 10/27/92	1.0	EPA Method 8240	GO
1,2-Dichlorop	ropane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
cis-1,3-Dichl	oropropene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Ethyl benzene	•	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Methylene Chl	oride	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1,2,2-Tetra	chloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Tetrachloroet	hene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Toluene		ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1,1-Trichlo	proethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1,2-Trichlo	proethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Trichloroethe	ene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Trichlorofluo	promethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
Vinyl Chlorid	de	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
trans-1,3-Dic	chloropropene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Total Petrole	eum Hydrocarbons	4.9	mg/l	1030 10/02/92	10	EPA Method 418.1	TSO
Hydrocarbon L	iquid Extraction	Completed		1300 10/01/92		EPA Method 3510 *MOD	PLH
	Qual	ity Assuranc		SET with Sam		1718	
Sample #	Description	Result Units Total	Dup/Std Value	Spk Conc. Percer Hydrocarbons		Time Date	Ву
	Blank	0.74 MG/L		•		1030 10/02/92	TS
			4=4	100		1070 10702702	Ŧ

I certify that the results were generated using the above specified methods.

PPM

150

C.H. Whiteside, Ph.D., President

150

Standard

100

1030

10/02/92

TSO



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B31 "Hot" JP 4.5

Collected By:

JPJ

Date & Time Taken:

09/23/92 0941

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 2 -- Unpre

2 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221719 Received: 09/25/92

RESULTS EOL METHOD BY PARAMETER UNITS ANALYZED 5.0 EPA Method 8240 1342 10/27/92 Xylenes ND ug/l GO 1342 10/27/92 100 EPA Method 8240 Acrolein ND ug/l GO EPA Method 8240 1342 10/27/92 100 Acrylonitrile ND ug/l GO EPA Method 8240 1342 10/27/92 5.0 GO Benzene ND ug/l 5.0 EPA Method 8240 ug/l 1342 10/27/92 GO Bromoform ND 10 EPA Method 8240 1342 10/27/92 GO Bromomethane ND ug/l EPA Method 8240 ug/l 1342 10/27/92 5.0 GO Carbon Tetrachloride ND EPA Method 8240 1342 10/27/92 5.0 GO Chlorobenzene ND ug/l EPA Method 8240 1342 10/27/92 10 Chloroethane ND ug/l GO EPA Method 8240 2-Chloroethylvinyl ether ND ug/l 1342 10/27/92 10 GO EPA Method 8240 Chloroform 1342 10/27/92 5.0 GO ND ug/l EPA Method 8240 Chloromethane 1342 10/27/92 10 GO ND ug/l Dibromochloromethane 1342 10/27/92 5.0 EPA Method 8240 GO ND ug/l 1342 10/27/92 5.0 EPA Method 8240 GO Bromodichloromethane ND ug/l EPA Method 8240 1342 10/27/92 5.0 GO 1,1-Dichloroethane ND ug/l 1.2-Dichloroethane 1342 10/27/92 5.0 EPA Method 8240 GO ND ug/l EPA Method 8240 GO 1,1-Dichloroethene ND ug/l 1342 10/27/92 5.0



Analytical Chemistry • Utility Operations

221719 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	B
trans-1,2-Dichloroethene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	G
Dichlorodiflouromethane	ND	ug/l	1342 10/27/92	1.0	EPA Method 8240	G
1,2-Dichloropropane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	G
cis-1,3-Dichloropropene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	G
Ethyl benzene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	G
Methylene Chloride	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	G
1,1,2,2-Tetrachloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	G
Tetrachloroethene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	C
Toluene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	(
1,1,1-Trichloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	
1,1,2-Trichloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	(
Trichloroethene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	ı
Trichlorofluoromethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	(
Vinyl Chloride	ND	ug/l	1342 10/27/92	10	EPA Method 8240	(
trans-1,3-Dichloropropene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	(
Total Petroleum Hydrocarbons	1.6	mg/l	1030 10/02/92	10	EPA Method 418.1	•
Hydrocarbon Liquid Extraction	Completed		1300 10/01/92		EPA Method 3510 *MOD	F
Quali	ty Assuranc	e for the	SET with Sam	ple 22	1719	
Sample # Description	Result Units	Dup/Std Value	Spk Conc. Percer	nt	······································	• • •

I certify that the results were generated using the above specified methods.

MG/L

PPM

150

C.H. Whiteside, Ph.D., President

0.74

150

Blank

Standard

Total Petroleum Hydrocarbons

1030

1030

100

10/02/92

10/02/92

TSO

TSO



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B32

Collected By:

Date & Time Taken:

09/23/92

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221720

Received: 09/25/92

Client: ARS1

PARAMETE	R	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Petrol	eum Hydrocarbons	1.6	mg/l	1030 10/02/92	10	EPA Method 418.1	TSO
Hydrocarbon (Liquid Extraction	Completed		1300 10/01/92		EPA Method 3510 *MOD	PLH
	Qual	ity Assura	nce for the	SET with Sam	ple 22	1720	
Sample #	Description	Result Units		Spk Conc. Perce		Time Date	Ву
	Blank	0.74 MG/L		-	1	1030 10/02/92	TSO
	Standard	150 PPM	150	100	1	1030 10/02/92	TSC

I certify that the results were generated using the above specified methods.

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B33

Collected By:

Date & Time Taken:

09/23/92 0910

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221721

Received: 09/25/92

Client: ARS1

Total Petroleum Hydrocarbons 3.3 mg/l 1030 10/02/92 10 EPA Method 418.1 TS Hydrocarbon Liquid Extraction Completed 1300 10/01/92 EPA Method 3510 *MOD PL Quality Assurance for the SET with Sample 221721 Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date Total Petroleum Hydrocarbons Blank 0.74 MG/L 1030 10/02/92 1	Lab :	sample Numb	EI.	221/21	1,000211	05,20	,, , ,			
Total Petroleum Hydrocarbons 3.3 mg/l 1030 10/02/92 10 EPA Method 418.1 TS Hydrocarbon Liquid Extraction Completed 1300 10/01/92 EPA Method 3510 *MOD PL Quality Assurance for the SET with Sample 221721 Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date Total Petroleum Hydrocarbons Blank 0.74 MG/L 1030 10/02/92 1	PARAMETE	R	RE	SULTS	UNITS	ANALY	ZED	EQL	METHOD	BY
Quality Assurance for the SET with Sample 221721 Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date Total Petroleum Hydrocarbons Blank 0.74 MG/L 1030 10/02/92 1			3.	3	mg/l	1030 10/	02/92	10	EPA Method 418.1	TSO
Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date E Total Petroleum Hydrocarbons Blank 0.74 MG/L 1030 10/02/92 1	Hydrocarbon l	Liquid Extraction	Co	mpleted		1300 10/	01/92		EPA Method 3510 *MOD	PLH
Total Petroleum Hydrocarbons Blank 0.74 MG/L 1030 10/02/92 1		Qual	ity A	ssuran	ce for the	SET with	samp	le 22:	1721	
Blank 0.74 MG/L 1030 10/02/92 T	Sample #	Description	Result					: 1	ime Date	Ву
Standard 150 PPM 150 100 1030 10/02/92 1		Blank	0.74			-		1	030 10/02/92	TSO
		Standard	150	PPM	150		100	1	030 10/02/92	T S0

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road VT 05068-South Royalton, Attention: Jack Jemsek

Sample Identification:

FPA-B41

Collected By:

JPJ

Date & Time Taken:

09/23/92 1000

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221722 Received: 09/25/92

Client: ARS1

PARAMETE	R	RES	ULTS	UNITS	ANALY	ZED	EQL	METHOD	BY
Total Petrol	eum Hydrocarbons	92		mg/l	1030 10/	02/92	10	EPA Method 418.1	TSO
Hydrocarbon	Liquid Extraction	Comp	oleted		1300 10/	01/92		EPA Method 3510 *MOD	PLH
	Qua1	ity As	suranc	e for the	SET with	Sampl	.e 221	.722	
Sample #	Description	Result	Units Total	Dup/Std Value Petroleum	•	Percent bons	T	ime Date	Ву
	Blank	0.74	MG/L				1	030 10/02/92	TSO
	Standard	150	PPM	150		100	1	030 10/02/92	TSO

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FPA-B45

Collected By:

Date & Time Taken:

09/23/92

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221723 Received: 09/25/92

Client: ARS1

PARAMETER RESULTS UNITS ANALYZED E	QL 1	METHOD	BY
Total Petroleum Hydrocarbons 4.9 mg/l 1030 10/02/92 1	10	EPA Method 418.1	TSO
Hydrocarbon Liquid Extraction Completed 1300 10/01/92		EPA Method 3510 *MOD	PLH
Quality Assurance for the SET with Sample	2217	23	
Sample # Description Result Units Dup/Std Value Spk Conc. Percent Total Petroleum Hydrocarbons	Time	e Date	Ву
	4070	10 (07 (03	TSO
Blank 0.74 MG/L	1030	• •	,
Standard 150 PPM 150 100	1030	0 10/02/92	TSO

I certify that the results were generated using the above specified methods.

Whiteside,

APPENDIX E

ANALYTICAL RESULTS FROM SOIL SAMPLES FROM FIRE TRAINING AREA

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FTA-B01-SS1 1'-1.5'

Collected By:

Date & Time Taken:

09/26/92 1646

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221849

Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->4	g->ml	1959 10/21/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		0830 09/30/92		EPA Method 3550 *MOD	JT
Phenols	ND	mg/kg	1230 10/06/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2030 10/02/92		EPA Method 420.1	ĸc
Naphthalene	ND	mg/kg	1655 10/26/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1655 10/26/92	.05	EPA Method 610	KB
Total Petroleum Hydrocarbons	910	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Quality Assurance for the SET with Sample 221849

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
				Pheno	ls				
	Blank	<.02	mg/l				1230	10/06/92	WMB
	Standard	.050	mg/l	.050		100	1230	10/06/92	WMB
222400	Duplicate	.13	mg/l	.13		100	1230	10/06/92	WMB
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FTA-B01-SS1 1'-1.5'

Collected By:

Date & Time Taken:

09/26/92 1646

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221843 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/kg	0239 10/31/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0239 10/31/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PN
2-Chloroethylvinyl ether	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PN
Chloromethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	Pi
Dibromochloromethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	Př
Bromodichloromethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	Pi
1,1-Dichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	P
1,2-Dichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PI
1,1-Dichloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PI
trans-1,2-Dichloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PI



Analytical Chemistry • Utility Operations

11/05/92

221843 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodiflouromethane	ND	ug/kg	0239 10/31/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM_
Ethyl benzene .	280	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM*
1,1,2,2-Tetrachloroethane	700	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	РМ
1,1,1-Trichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	РМ
Trichloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	РМ
Trichlorofluoromethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Xylenes	1100	ug/kg	0239 10/31/92	10	EPA Method 8240	PM

In addition to the reported list the following compounds were tentatively identified in approximate concentrations:

Compound

Concentration (ppb)

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/06/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FTA-B01-SS4 2.25'-3.0' Hot

Collected By:

Date & Time Taken:

09/26/92 1750

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221852 Received: 09/28/92

Client: ARS1

	D D C III D C	IINTEC	ANATVOED	FOI	METHOD	BY
PARAMETER	RESULTS	UNITS	ANALYZED	EQL	EPA Method 3510	LM
TCLP Liquid-Liquid Extraction	1000->1	ml->ml	2243 10/08/92		EPA Method 3310	Lm
TCLP Lig-Lig Extr. W/Hex Exch.	1000->1	ml->ml	2241 10/08/92		EPA Method 3510	LM
TCLP Liq-Liq Extr. W/Hex Excli.	1000-21	me zme	2241 10/00/72			
TCLP ZHE Volatile Extraction	100.0% Sol	Completed.	1430 10/01/92		EPA Method 1311	LM
		•				
TCLP Extraction	SOLID EXT #1		1510 10/02/92		EPA Method 1311	RJH
Esterification of Sample Extract	Completed.		1500 10/13/92		EPA Method 8150	KB
	07/	/ l	0025 40/27/02	0.005	EPA Method 8240-TCLP	PM
TCLP Benzene (Reg. Limit 0.5)	.036	mg/l	0025 10/23/92	0.005	EPA Method 0240-1CEP	FIII
TCLP Gamma-BHC (Lindane) (.4)	ND	mg/l	1405 10/13/92	0.00004	EPA Method 8080-TCLP	KB
TELF daming bile (Efficiency (14)	110					
TCLP Carbon Tetrachloride (.5)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP Chlordane (Reg. Limit 0.03)	ND	mg/t	1405 10/13/92	0.00014	EPA Method 8080-TCLP	KB
TCLP Chlorobenzene (Limit 100)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
	cos.	tl	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP Chloroform (Reg. Limit 6.0)	ND	mg/l	0023 10/23/92	0.003	EFA Method 0240 TCLF	En
TCLP 1,4 Dichlorobenzene: RL 7.5	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP 1,4 DTCM(OFODerizerie: RE 7.5	NU	3 / °	3311 11, 33, 72			
TCLP 1,2-Dichloroethane (RL .5)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP 1,1-Dichloroethene (.7)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP 2,4-Dinitrotoluene (.13)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
		()	1/05 10/17/03	0.00006	EPA Method 8080-TCLP	KB
TCLP Endrin (Reg. Limit 0.02)	ND	mg/l	1405 10/13/92	0.00000	EFA METHOU GOOD TUEF	N.D
TCLP Heptachlor (Limit .008)	ND	mg/l	1405 10/13/92	0.00003	EPA Method 8080-TCLP	KB
Tele Replacation (Limit 1000)	MD	ma) r	.702 10/10//6			



Analytical Chemistry • Utility Operations

221852 Continued

Page 2

PARAMETER TCLP Heptachlor Epoxide (.008)	RESULTS	UNITS mg/l	ANALYZED 1405 10/13/92	EQL 0.00083	METHOD EPA Method 8080-TCLP	BY KB
TCLP Hexachlorobenzene (.13)	ND	mg/l	0847 11/03/92	0.05	EPA Method 8270-TCLP	PM
TCLP Hexachlorobutadiene (.5)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM .
TCLP Hexachlorethane (Limit 3)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP Nitrobenzene (Limit 2)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM *
TCLP Pentachlorophenol (100)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP Tetrachloroethylene (.7)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP Toxaphene (Reg. Limit 0.5)	ND	mg/l	1405 10/13/92	0.0024	EPA Method 8080-TCLP	KB
TCLP Trichloroethylene (.5)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP 2,4,6-Trichlorophenol (2)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP Vinyl Chloride (.2)	ND	mg/l	0025 10/23/92	0.01	EPA Method 8240-TCLP	PM
TCLP 2,4 D (Reg. Limit 10)	ND	mg/l	1820 10/13/92	0.012	EPA Method 8150-TCLP	KB
TCLP 2,4,5-Trichlorophenol (400)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP 2,4,5-TP (Silvex) (RL 1)	ND	mg/l	1820 10/13/92	0.0017	EPA Method 8150-TCLP	KB
TCLP Cresol (Reg. Limit 1)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP MEK (Reg. Limit 200)	ND	mg/l	0025 10/23/92	0.05	EPA Method 8240-TCLP	PM
TCLP Methoxychlor (RL 10)	ND	mg/l	1405 10/13/92	0.0018	EPA Method 8080-TCLP	КВ
TCLP Pyridine (Reg. Limit 5)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
Metals Digestion TCLP 3010	Digested	a/s	1600 10/06/92		EPA Method 3010	BWP
Metals Digestion - TCLP 7470	Digested	A/B/S	1000 10/06/92		EPA Method 7470	DKR
TCLP Silver (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.01	EPA Method 6010	G D G
TCLP Arsenic (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.2	EPA Method 6010	GDG
TCLP Barium (Reg. Limit 100.0)	3.3	mg/l	1333 10/10/92	1.0	EPA Method 6010	GDG
TCLP Cadmium (Reg. Limit 1.0)	.01	mg/l	1333 10/10/92	.01	EPA Method 6010	GDG



Analytical Chemistry • Utility Operations

221852 Continued

Page 3

PARAMETER TCLP Chromium (Reg. Limit 5.0)	RESULTS	UNITS mg/l	ANALYZED 1333 10/10/92	EQL .02	METHOD EPA Method 6010	BY GDG
TCLP Mercury (Reg. Limit 0.2)	ND	mg/l	1200 10/18/92	.001	EPA Method 7470	LW
_ TCLP Lead (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.1	EPA Method 6010	GDG
TCLP Selenium (Reg. Limit 1.0)	ND	mg/l	1333 10/10/92	.2	EPA Method 6010	GDG

Reported results for TCLP analysis are corrected upward to reflect matrix spike recoveries.

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FTA-B01-SS2 3.25'-4.0' Hot

Collected By:

Date & Time Taken:

09/26/92 1700

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221850 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	1953 09/29/92		EPA Method 3550	LM
Total Sonic Extr. W/Hex Exch.	30->4	g->ml	1954 10/21/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		0830 09/30/92		EPA Method 3550 *MOD	JT
Phenols	ND	mg/kg	1230 10/06/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2030 10/02/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1640 10/26/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1640 10/26/92	.05	EPA Method 610	KB
Acenaphthene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzidine	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	₽M



Analytical Chemistry • Utility Operations

221850 Continued

Page 2

			EQL	METHOD	BY
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	РМ
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	РМ
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	РМ
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	670	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
 ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	P M
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	РМ
ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
	ND N	ND ug/kg ND ug/kg	ND	ND	ND



Analytical Chemistry • Utility Operations

221850 Continued

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hexachlorocyclopentadiene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Naphthalene	1200	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	РМ
Pyrene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
2-Methylnaphthalene	3200	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Total Petroleum Hydrocarbons	1900	mg/kg	1200 09/30/92	50	EPA Method 418.1	TS

Quality Assurance for the SET with Sample 221850

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
•	•			Pheno:	ls				
	Blank	<.02	mg/l				1230	10/06/92	WMB
	Standard	.050	mg/l	.050		100	1230	10/06/92	WMB
222400	Duplicate	.13	mg/l	.13		100	1230	10/06/92	WMB
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	T S0
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

C.H. Whiteside Ph.D. President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FTA-B01-SS2 3.25'-4.0'

Collected By:

Date & Time Taken:

09/26/92 1700

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221844 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	B'	
Acrolein	ND	ug/kg	0011 11/05/92	10000	EPA Method 8240	PM	
Acrylonitrile	ND	ug/kg	0011 11/05/92	10000	EPA Method 8240	PN	
Benzene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PN	
Bromoform	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	P	
Bromomethane	ND	ug/kg	0011 11/05/92	1000	EPA Method 8240	P	
Carbon Tetrachloride	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	Р	
Chlorobenzene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	Р	
Chloroethane	ND	ug/kg	0011 11/05/92	1000	EPA Method 8240	P	
2-Chloroethylvinyl ether	ND	ug/kg	0011 11/05/92	1000	EPA Method 8240	P	
Chloroform	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	F	
Chloromethane	ND	ug/kg	0011 11/05/92	1000	EPA Method 8240	F	
Dibromochloromethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	F	
Bromodichloromethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240		
1,1-Dichloroethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	ı	
1,2-Dichloroethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	ı	
1,1-Dichloroethene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	\$	
trans-1,2-Dichloroethene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	F	



Analytical Chemistry • Utility Operations

221844 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodiflouromethane	ND	ug/kg	0011 11/05/92	100	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	P M
cis-1,3-Dichloropropene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM _
Ethyl benzene	1400	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM *
1,1,2,2-Tetrachloroethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Toluene	1500	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0011 11/05/92	1000	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0011 11/05/92	1000	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Xylenes	3400	ug/kg	0011 11/05/92	1000	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FTA-B01-SS3 6'-7' Hot

Collected By:

Date & Time Taken:

09/26/92

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221851 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2220 10/21/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		0830 09/30/92		EPA Method 3550 *MOD	JT
Phenols	ND	mg/kg	1230 10/06/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1730 10/05/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1530 10/26/92	.05	EPA Method 610	КВ
2-Methylnaphthalene	ND	mg/kg	1530 10/26/92	.05	EPA Method 610	КВ
Total Petroleum Hydrocarbons	460	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Quality Assurance for the SET with Sample 221851

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
				Pheno:	ls				
	Blank	<.02	mg/l				1230	10/06/92	WMB
	Standard	.050	mg/l	.050		100	1230	10/06/92	WMB
222400	Duplicate	.13	mg/l	.13		100	1230	10/06/92	WMB
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/L		_		1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FTA-B01-SS3 6'-7'

Collected By:

Date & Time Taken:

09/26/92 1700

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221845 Received: 09/28/92

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/kg	0526 10/31/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0526 10/31/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0526 10/31/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0526 10/31/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0526 10/31/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0526 10/31/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	РМ
1,1-Dichloroethene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	РМ
trans-1,2-Dichloroethene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

221845 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodiflouromethane	ND	ug/kg	0526 10/31/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	P M
cis-1,3-Dichloropropene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Ethyl benzene	63	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	130	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Toluene	16	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0526 10/31/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0526 10/31/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Xylenes	610	ug/kg	0526 10/31/92	10	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FTA-B01-SS5 9.5'-10.0'

Collected By:

Date & Time Taken:

09/26/92 1800

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221853 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->2	g->ml	2223 10/21/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		0830 09/30/92		EPA Method 3550 *MOD	JT
Phenols	ND	mg/kg	1445 10/07/92	2	EPA Method 420.1	WMB
Phenol Distillation	Distilled		1400 10/06/92		EPA Method 420.1	WMB
Naphthalene	ND	mg/kg	1450 10/26/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1450 10/26/92	.05	EPA Method 610	KB
Total Petroleum Hydrocarbons	12	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Quality Assurance for the SET with Sample 221853

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
·				Pheno	ls				
	Blank	<.02	mg/l				1445	10/07/92	WMB
	Standard	.049	mg/l	.050		102	1445	10/07/92	WMB
221858	Duplicate	ND	mg/l	ND		100	1445	10/07/92	WMB
			Total	Petroleum	Hydroca	rbons			
	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FTA-B01-SS5 9.5'-10.0'

Collected By:

Date & Time Taken:

09/26/92 1800

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Client: ARS1 Lab Sample Number: 221846 Received: 09/28/92

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/kg	1539 10/28/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1539 10/28/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1539 10/28/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1539 10/28/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1539 10/28/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1539 10/28/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM

11/05/92

221846 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodiflouromethane	ND	ug/kg	1539 10/28/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM _
Ethyl benzene	250	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM *
1,1,2,2-Tetrachloroethane	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Toluene	150	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	13	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	24	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1539 10/28/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1539 10/28/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	РМ
Xylenes	1200	ug/kg	1539 10/28/92	10	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FTA-B04-SS1 1'-2'

Collected By:

Date & Time Taken:

09/28/92 1245

Other Data: AFSCAPS Job # 5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04) Lab Sample Number: 222089 Received: 09/30/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2207 10/21/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		1100 10/05/92		EPA Method 3550 *MOD	DDM
Phenols	ND	mg/kg	1445 10/12/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2030 10/08/92		EPA Method 420.1	WKC
Naphthalene	ND	mg/kg	1610 10/26/92	.05	EPA Method 610	КВ
2-Methylnaphthalene	ND	mg/kg	1610 10/26/92	.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1151 10/31/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1151 10/31/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Bromoform	ND .	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1151 10/31/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1151 10/31/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1151 10/31/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1151 10/31/92	10	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

11/05/92

222089 Continued

Page 2

					-	
PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dibromochloromethane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM_
1,1-Dichloroethene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	1151 10/31/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	160	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1151 10/31/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1151 10/31/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Xylenes	80	ug/kg	1151 10/31/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	2300	mg/kg	1000 10/03/92	10	EPA Method 418.1	sĸ
Total Petroleum nyurocarbons	2300	1197 29	1000 10/03/92	10	EFA Method 418.1	

Quality Assurance for the SET with Sample 222089

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Phenols



Analytical Chemistry • Utility Operations

222089 Continued Page 3

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
•	Blank	<.02	mg/l				1445	10/12/92	WME
	Standard	.049	mg/l	.050		102	1445	10/12/92	WME
222839	Duplicate	ND	mg/l	ND		100	1445	10/12/92	WME
			Total	Petroleum	Hydroca	rbons			
	Blank	<.5	mg/l				1000	10/03/92	SK
	Standard	51	mg/l	50		102	1000	10/03/92	SK
222142	Duplicate	ND	mg/l	ND		100	1000	10/03/92	SK

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FTA-B04-SS2 8'-9'

Collected By:

Date & Time Taken:

09/28/92 1250

Other Data: AFSCAPS Job # 5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 222090

Received: 09/30/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2201 10/21/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		1100 10/05/92		EPA Method 3550 *MCD	DDM
Phenols	ND	mg/kg	1445 10/12/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2030 10/08/92		EPA Method 420.1	WKC
Naphthalene	ND	mg/kg	1545 10/26/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1545 10/26/92	.05	EPA Method 610	KB
Acrolein	ND	ug/kg	0025 10/31/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0025 10/31/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM.
2-Chloroethylvinyl ether	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

222090 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dibromochloromethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	РМ
1,2-Dichloroethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	0025 10/31/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Xylenes	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	ND	mg/kg	1000 10/03/92	10	EPA Method 418.1	SK

Quality Assurance for the SET with Sample 222090

Sample # Description Result Units

Dup/Std Value Spk Conc. Percent Time Date

Ву



222142

2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

100

1000

10/03/92

SK

Ву
WMS
WMB
WMB
>
SK
SK
•

I certify that the results were generated using the above specified methods.

mg/l

ND

C.H. Whiteside, Ph.D., President

ND

Duplicate

APPENDIX F

ANALYTICAL RESULTS FROM WATER SAMPLES FROM FIRE TRAINING AREA



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

FTA-B01-W Hot

Collected By: JPJ

Date & Time Taken:

09/26/92 1800

Other Data: AFSCAPS Job #5735, Tinker AF8

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221847 Received: 09/28/92 Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Acrolein	ND	ug/l	1610 10/27/92	100	EPA Method 8240	GO
Acrylonitrile	ND	ug/l	1610 10/27/92	100	EPA Method 8240	GO
Benzene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Bromoform	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Bromomethane	ND	ug/l	1610 10/27/92	10	EPA Method 8240	GO
Carbon Tetrachloride	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Chlorobenzene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Chloroethane	ND	ug/l	1610 10/27/92	10	EPA Method 8240	GO
2-Chloroethylvinyl ether	ND	ug/l	1610 10/27/92	10	EPA Method 8240	GO
Chloroform	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Chloromethane	ND	ug/l	1610 10/27/92	10	EPA Method 8240	GO
Dibromochloromethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Bromodichloromethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
1,1-Dichloroethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
1,2-Dichloroethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	60
1,1-Dichloroethene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO



Analytical Chemistry • Utility Operations

221847 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	B
trans-1,2-Dichloroethene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Dichlorodiflouromethane	ND	ug/l	1610 10/27/92	1.0	EPA Method 8240	GO
1,2-Dichloropropane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GC
cis-1,3-Dichloropropene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	G
Ethyl benzene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	G
Methylene Chloride	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	G
1,1,2,2-Tetrachloroethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	G
Tetrachloroethene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	G
Toluene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	G
1,1,1-Trichloroethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	G
1,1,2-Trichloroethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	G
Trichloroethene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	0
Trichlorofluoromethane	ND	ug/l	1610 10/27/92	10	EPA Method 8240	C
Vinyl Chloride	ND	ug/l	1610 10/27/92	10	EPA Method 8240	G
trans-1,3-Dichloropropene	ND	ug/i	1610 10/27/92	5.0	EPA Method 8240	G
Total Petroleum Hydrocarbons	3.3	mg/l	1030 10/02/92	10	EPA Method 418.1	Ţ
Hydrocarbon Liquid Extraction	Completed		1300 10/01/92		EPA Method 3510 *MOD	F
Quali	ity Assuranc	e for the	SET with Sam	ple 22	1847	
Sample # Description	Result Units	Dup/Std Value	Spk Conc. Percei	nt		• •

Sample #	Description	Result	Units	Dup/Std Value Petroleum	Spk Conc.	Percent	Time	Date	Ву
	Blank	0.74	MG/L				1030	10/02/92	TSO
	Standard	150	PPM	150		100	1030	10/02/92	TSO

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President

APPENDIX G

ANALYTICAL RESULTS FROM SOIL SAMPLES FROM INDUSTRIAL WASTEWATER TREATMENT PLANT



Client: ARS1

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-B01-SS1 @16'

Collected By:

Date & Time Taken:

09/23/92 1500

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221715 Received: 09/25/92

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	1904 09/29/92		EPA Method 3550	LM
Phenois	ND	mg/kg	1500 10/05/92	1	EPA Method 420.1	WMB
Phenol Distillation	Distilled		1400 10/02/92		EPA Method 420.1	WMB
Total Arsenic	1	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Barium	580	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Cadmium	3	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Chromium	13	mg/kg	1136 10/15/92	.2	EPA Method 6010	RJC
Total Mercury	.06	mg/kg	1400 10/02/92	.05	EPA Method 7470	SY
Total Nickel	8.8	mg/kg	1244 10/14/92	.6	EPA Method 6010	RJC
Total Lead	4	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Zinc	15	mg/kg	1244 10/14/92	.1	EPA Method 6010	RJC
Metals Digestion - 3050 Fl	Digested 50/4		0730 10/09/92		EPA Method 3050 Fl	JHL
Metals Digestion - 7471	Digested 50/1		0845 10/02/92		EPA Method 7471	JHL
Acenaphthene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Benzidine	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

221715 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Benzo(a)anthracene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND .	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	0900 11/05/92	3 30	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	0900 11/05/92	3 30	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	₽M
3,3'-Dichlorobenzidine	ND	ug/kg	0900 11/05/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92

221715 Continued

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
2,6-Dinitrotoluene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PŘ
Fluorene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Naphthalene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
2-Methylnaphthalene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM

Quality Assurance for the SET with Sample 221715

• • • • • • • • •							_	_
Sample #	Description	Result	Units	Dup/Std Value Spk Conc.	Percent	Time	Date	Ву
				Phenols				
	Blank	<.02	mg/l			1500	10/05/92	WMB
	Standard	.050	mg/l	.050	100	1500	10/05/92	WMB
222287	Duplicate	.02	mg/l	.02	100	1500	10/05/92	WMB
				Total Arsenic				
	Blank	<.1	mg/l			1136	10/15/92	RJC



11/05/92

221715 Continued

Page 4

			·						
Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	.99	mg/l	1.0		101	1136	10/15/92	RJC
	Standard	2.0	mg/l	2.0		100	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.7	mg/l	.6		115	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	1	mg/kg	1		100	1136	10/15/92	RJC
221855	Duplicate	5	mg/kg	3		150	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	5		100	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
	•			Total B	arium				
	Blank	.02	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	5.1	mg/l	5.0		102	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	10	mg/l	10		100	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
221715	Duplicate	580	mg/kg	560		104	1136	10/15/92	RJC
221855	Duplicate	200	mg/kg	180		111	1136	10/15/92	RJC
221864	Duplicate	22	mg/kg	20		110	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	110	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	98	1136	10/15/92	RJC
22 1033				Total Ca	dmium				
	Blank	<.01	mg/l				1136	10/15/92	RJO
	Blank	<.01	mg/l				1136	10/15/92	RJO
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJO
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJO
	Standard	2.6	mg/l	2.5		104	1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJO
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJO
	Standard	.54	mg/l	.50		108	1136	10/15/92	RJO
	Standard	.52	mg/l	.50		104	1136	10/15/92	RJO
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJO
221715	Duplicate	3	mg/kg	3		100	1136	10/15/92	RJO
	' <u>-</u> '	2		2		100	1136	10/15/92	RJO
221855	Duplicate	2	mg/kg	L					



221715 Continued 11/05/92

Page 5

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
221864	Duplicate	3.3	mg/kg	3.0		110	1136	10/15/92	RJ
222319	Spike		mg/l		2.0	96	1136	10/15/92	RJ
221855	Spike		mg/l		2.0	91	1136	10/15/92	RJ
221864	Spike		mg/l		2.0	89	1136	10/15/92	11.3
221715	Spike		mg/l		2.0	104	1136	10/15/92	RJ
22.7.13				Total Ch					
	Blank	<.02	mg/l				1136	10/15/92	RJ
	Blank	<.02	mg/l				1136	10/15/92	RJ
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJ
	Standard	5.3	mg/l	5.0		106	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJ
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJ
	Standard	.11	mg/l	.10		110	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJ
222319	Duplicate	.02	mg/l	.02		100	1136	10/15/92	RJ
221715	Duplicate	11	mg/kg	15		131	1136	10/15/92	RJ
221855	Duplicate	8	mg/kg	7		113	1136	10/15/92	RJ
221864	Duplicate	14	mg/kg	12		115	1136	10/15/92	RJ
222319	Spike		mg/l		2.0	99	1136	10/15/92	RJ
221855	Spike		mg/l		2.0	94	1136	10/15/92	RJ
221864	Spike		mg/l		2.0	92	1136	10/15/92	RJ
221715	Spike		mg/l		5.0	92	1136	10/15/92	RJ
	5,75		•	Total Me					
	Blank	.001	mg/l				1400	10/02/92	SY
	Standard	.026	mg/l	.025		104	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.009	mg/l	.010		111	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
220412	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220803	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220412	Spike		mg/l		.010	64	1400	10/02/92	SY
220803	Spike		mg/l		.010	99	1400	10/02/92	SY
	·			Total N	ickel				
	Blank	<.05	mg/l				1244	10/14/92	RJ
	Blank	<.05	mg/l				1244	10/14/92	RJ
	Standard	.40	mg/l	.40		100	1244	10/14/92	RJ
	Standard	2.1	mg/l	2.0		105	1244	10/14/92	RJ
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJ
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJ
	Standard	1.0	mg/l	1.0		100	1244	10/14/92	RJ
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJ
	Standard	10	mg/l	10		100	1244	10/14/92	RJ
	Standard	5.5	mg/l	5.0		110	1244	10/14/92	RJ
222319	Duplicate	ND	mg/l	ND		100	1244	10/14/92	RJ



221715 Continued

Page 6

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
221715	Duplicate	8.4	mg/kg	9.1		108	1244	10/14/92	RJC
221855	Duplicate	4.6	mg/kg	4.0		114	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	99	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	88	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	92	1244	10/14/92	RJC
	·			Total	Lead				
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	5.2	mg/l	5.0		104	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.62	mg/l	.60		103	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
222319	Spike	-	mg/l		2.0	95	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	90	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
221713	opike			Total	Zinc				
	Blank	<.01	mg/l				1244	10/14/92	RJC
	Blank	.02	mg/l				1244	10/14/92	RJC
	Standard	.21	mg/l	.20		105	1244	10/14/92	RJC
	Standard	2.0	mg/l	2.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.1	mg/l	1.0		110	1244	10/14/92	RJC
	Standard	5.3	mg/l	5.0		106	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC
222319	Duplicate	.80	mg/l	.77		104	1244	10/14/92	RJC
221715	Duplicate	14	mg/kg	16		113	1244	10/14/92	RJC
221855	Duplicate	7.3	mg/kg	5.9		121	1244	10/14/92	RJC
222319	Spike		mg/l	- * -	2.0	95	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	93	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	95	1244	10/14/92	RJC

I certify that the results were generated using the above specified methods.



11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-B02-SS1 @16'

Collected By:

Date & Time Taken:

09/23/92 1530

Other Data: AFSCAPS Job #5735, Tinker AFB
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Client: ARS1 Lab Sample Number: 221716 Received: 09/25/92

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
2-Methylnaphthalene	nd	ug/kg	1020 10/01/92	330	EPA Method 8270	₽₩
Total Sonic Extraction	30->1	g->ml	2003 09/29/92		EPA Method 3550	LM
Phenols	ND	mg/kg	1500 10/05/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1730 10/02/92		EPA Method 420.1	KC
Total Arsenic	ND	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Barium	230	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Cadmium	3	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Chromium	11	mg/kg	1136 10/15/92	.2	EPA Method 6010	RJC
Total Mercury	ND	mg/kg	1400 10/02/92	.05	EPA Method 7470	SY
Total Nickel	7.6	mg/kg	1244 10/14/92	.6	EPA Method 6010	RJC
Total Lead	4	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Zinc	15	mg/kg	1244 10/14/92	.1	EPA Method 6010	RJC
Metals Digestion - 3050 Fl	Digested 50/4		0730 10/08/92		EPA Method 3050 Fl	JHL
Metals Digestion - 7471	Digested 50/1		0845 10/02/92		EPA Method 7471	JHL
Acenaphthene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Aldrin	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

221716 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Anthracene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzidine	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1020 10/01/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92

221716 Continued

Page 3

	•					
PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Di-n-octylphthalate	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PÀ
1,2-DPH (as azobenzene)	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM

Quality Assurance for the SET with Sample 221716

D./
Ву
WMB
WMB
WM B



11/05/92

221716 Continued

Page 4

Sample #	Description	Result	Units	Dup/Std Value Spk Conc. Total Arsenic	Percent	Time	Date	Ву
	Blank	<.1	mg/l	10041 111101110		1136	10/15/92	RJO
	Blank	<.1	mg/l			1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJ
	Standard	2.2	mg/l	2.0	110	1136	10/15/92	RJ
	Standard	.99	mg/l	1.0	101	1136	10/15/92	RJ
	Standard	2.0	mg/l	2.0	100	1136	10/15/92	RJ
	Standard	1.1	mg/l	1.0	110	1136	10/15/92	RJ
	Standard	.7	mg/l	.6	115	1136	10/15/92	RJ
	Standard	1.1	mg/l	1.0	110	1136	10/15/92	RJ
222319	Duplicate	ND	mg/l	ND	100	1136	10/15/92	RJ
221715	Duplicate	1	mg/kg	1	100	1136	10/15/92	RJ
221855	Duplicate	5	mg/kg	3	150	1136	10/15/92	RJ(
221864	Duplicate	5	mg/kg	5	100	1136	10/15/92	RJ
222319	Spike	-	mg/l	2.0	109	1136	10/15/92	RJO
221855	Spike		mg/l	2.0	93	1136	10/15/92	RJ
221864	Spike		mg/l	2.0	109	1136	10/15/92	RJ
221715	Spike		mg/l	5.0	89	1136	10/15/92	RJ
	Opine			Total Barium				
	Blank	.02	mg/l			1136	10/15/92	RJ
	Blank	<.01	mg/l			1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJ
	Standard	5.1	mg/l	5.0	102	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJ
	Standard	1.7	mg/t	2.0	116	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJ
	Standard	2.1	mg/l	2.0	105	1136	10/15/92	RJ
	Standard	10	mg/l	10	100	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJ
221715	Duplicate	580	mg/kg	560	104	1136	10/15/92	RJ
221855	Duplicate	200	mg/kg	180	111	1136	10/15/92	RJ
221864	Duplicate	22	mg/kg	20	110	1136	10/15/92	RJ
221864	Spike		mg/l	2.0	91	1136	10/15/92	RJ
221715	Spike		mg/l	5.0	110	1136	10/15/92	RJ
221855	Spike		mg/l	2.0	98	1136	10/15/92	RJ
				Total Cadmium				
	Blank	<.01	mg/l			1136	10/15/92	RJ
	Blank	<.01	mg/l			1136	10/15/92	RJ
	Standard	.53	mg/l	.50	106	1136	10/15/92	RJ
	Standard	2.2	mg/l	2.0	110	1136	10/15/92	RJ
	Standard	2.6	mg/l	2.5	104	1136	10/15/92	RJ
	Standard	.53	mg/l	.50	106	1136	10/15/92	RJ
	Standard	1.7	mg/l	2.0	116	1136	10/15/92	RJ
	Standard	.54	mg/l	.50	108	1136	10/15/92	RJ
	Standard	.52	mg/l	.50	104	1136	10/15/92	RJ
222319	Duplicate	ND	mg/l	ND .	100	1136	10/15/92	RJ



11/05/92

221716 Continued

Page 5

			•			,			
Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
221715	Duplicate	3	mg/kg	3		100	1136	10/15/92	RJO
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	3.3	mg/kg	3.0		110	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	96	1136	10/15/92	*JC
221855	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	89	1136	10/15/92	RJC
221715	Spike		mg/l		2.0	104	1136	10/15/92	RJC
				Total Ch	romium				
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	5.3	mg/l	5.0		106	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	.11	mg/l	.10		110	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	.02	mg/l	.02		100	1136	10/15/92	RJC
221715	Duplicate	11	mg/kg	15		131	1136	10/15/92	RJC
221855	Duplicate	8	mg/kg	7		113	1136	10/15/92	RJC
221864	Duplicate	14	mg/kg	12		115	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	99	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	94	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	92	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	92	1136	10/15/92	RJC
				Total Me	rcury				
	Blank	.001	mg/l				1400	10/02/92	SY
	Standard	.026	mg/l	.025		104	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.009	mg/l	.010		111	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
220412	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220803	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220412	Spike		mg/i		.010	64	1400	10/02/92	SY
220803	Spike		mg/l		.010	99	1400	10/02/92	SY
	.,			Total N					
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Standard	.40	mg/l	.40		100	1244	10/14/92	RJC
	Standard	2.1	mg/l	2.0		105	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.0	mg/l	1.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
									RJC
	Standard	10	mg/l	10		100	1244	10/14/92	



11/05/92

221716 Continued

Page 6

					<u></u>				
Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	5.5	mg/l	5.0		110	1244	10/14/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1244	10/14/92	RJC
221715	Duplicate	8.4	mg/kg	9.1		108	1244	10/14/92	RJC
221855	Duplicate	4.6	mg/kg	4.0		114	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	99	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	88	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	92	1244	10/14/92	RJC
	•			Total	Lead				
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	5.2	mg/l	5.0		104	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.62	mg/l	.60		103	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	95	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	90	1136	10/15/92	RJO
221864	Spike		mg/l		2.0	93	1136	10/15/92	RJO
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJO
			•	Total	Zinc				
	Blank	<.01	mg/l				1244	10/14/92	RJO
	Blank	.02	mg/l				1244	10/14/92	RJO
	Standard	.21	mg/l	.20		105	1244	10/14/92	RJO
	Standard	2.0	mg/l	2.0		100	1244	10/14/92	RJO
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJO
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJO
	Standard	1.1	mg/l	1.0		110	1244	10/14/92	RJO
	Standard	5.3	mg/l	5.0		106	1244	10/14/92	RJ(
	Standard	10	mg/l	10		100	1244	10/14/92	RJ(
222319	Duplicate	.80	mg/l	.77		104	1244	10/14/92	RJ
221715	Duplicate	14	mg/kg	16		113	1244	10/14/92	RJ
221855	Duplicate	7.3	mg/kg	5.9		121	1244	10/14/92	RJ
222319	Spike		mg/l		2.0	95	1244	10/14/92	RJ
221715	Spike		mg/l		2.0	93	1244	10/14/92	RJ
221855	Spike		mg/l		2.0	95	1244	10/14/92	RJ

I certify that the results were generated using the above specified methods.



11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-B03-SS1 @16'

Collected By:

Date & Time Taken:

09/23/92

UNITS

g->ml

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

ug/kg

ug/kg

ug/kg

ug/kg

Other Data:

AFSCAPS Job #5735, Tinker AFB

RESULTS

DISTILLED

ND

200

3

11

ND

8.6

ND

ND

ND

Digested 50/4

Digested 50/1

30->1

Bottle Data:

PARAMETER

Phenole

Total Sonic Extraction

Phenol Distillation

Total Arsenic

Total Barium

Total Cadmium

Total Chromium

Total Mercury

Total Nickel

Total Lead

Total Zinc

Acenaphthene

Acenaphthylene

Anthracene

Benzidine

Metals Digestion - 3050 FL

Metals Digestion - 7471

1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

221717

Received: 09/25/92

ANALYZED

1956 09/29/92

1500 10/05/92

1730 10/02/92

1136 10/15/92

1136 10/15/92

1136 10/15/92

1136 10/15/92

1400 10/02/92

1244 10/14/92

1136 10/15/92

1244 10/14/92

0730 10/08/92

0845 10/02/92

1140 11/05/92

1140 11/05/92

1140 11/05/92

1140 11/05/92

330

METHOD BY EOL EPA Method 3550 LM EPA Method 420.1 UMR EPA Method 420.1 KC. EPA Method 6010 RJC EPA Method 6010 RJC .1 EPA Method 6010 RJC .2 EPA Method 6010 RJC .05 EPA Method 7470 EPA Method 6010 RJC EPA Method 6010 RJC .1 EPA Method 6010 RJC EPA Method 3050 Fl JHL EPA Method 7471 JHI 330 EPA Method 8270 PM 330 EPA Method 8270 PM 330 EPA Method 8270 PM

EPA Method 8270

PM

Client: ARS1



Analytical Chemistry • Utility Operations

221717 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Benzo(a)anthracene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1140 11/05/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

221717 Continued

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
2,6-Dinitrotoluene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1140 11/05/92	3 30	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Hexach l orobenzene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Hexach lorobutadiene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1140 11/05/92	3 30	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
2-Methylnaphthalene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification: WTP-B04-SS1 @16'

Collected By: JPJ

Date & Time Taken:

09/25/92 1025

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221854 Received: 09/28/92

Client: ARS1

_						
PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	1959 09/29/92		EPA Method 3550	LM
Phenols	ND	mg/kg	1445 10/07/92	2	EPA Method 420.1	WMB
Phenol Distillation	Distilled		1400 10/06/92		EPA Method 420.1	WMB
Total Arsenic	2	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Barium	260	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Cadmium	3	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Chromium	12	mg/kg	1136 10/15/92	.2	EPA Method 6010	RJC
Total Mercury	ND	mg/kg	1400 10/02/92	.05	EPA Method 7470	SY
Total Nickel	9.8	mg/kg	1244 10/14/92	.6	EPA Method 6010	RJC
Total Lead	4	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Zinc	17	mg/kg	1244 10/14/92	.1	EPA Method 6010	RJC
Metals Digestion - 3050 Fl	Digested 50/4		0730 10/08/92		EPA Method 3050 Fl	JHL
Metals Digestion - 7471	Digested 50/1		0845 10/02/92		EPA Method 7471	JHL
Acenaphthene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Benzidine	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

221854 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Benzo(a)anthracene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PA
Benzo(ghi)perylene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1700 11/05/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM



221854 Continued 11/05/92

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
2,6-Dinitrotoluene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
2-Methylnaphthalene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President





11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-B04-SS1 @16'

Collected By:

Date & Time Taken:

09/25/92 1025

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Client: ARS1 Lab Sample Number: 221838 Received: 09/28/92

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/kg	0721 10/28/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0721 10/28/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

221838 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodiflouromethane	ND	ug/kg	0721 10/28/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	. ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Xylenes	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-B05-SS1 @14'

Collected By:

Date & Time Taken:

09/25/92 1122

Other Data: AFS

AFSCAPS Job #5735, Tinker AFB

Bottle Data:

1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

221855

Received: 09/28/92

PARAMETER UNITS METHOD BY RESULTS ANALYZED EOL Total Sonic Extraction 10->1 1258 09/30/92 EPA Method 3550 DDM g->ml 2-Methylnaphthalene 1346 10/05/92 1000 EPA Method 8270 nd ug/kg Phenols 1445 10/07/92 EPA Method 420.1 mg/kg Phenol Distillation DISTILLED 1730 10/06/92 EPA Method 420.1 WKC Total Arsenic mg/kg 1136 10/15/92 EPA Method 6010 RJC 1136 10/15/92 EPA Method 6010 Total Barium 190 mg/kg .1 RJC EPA Method 6010 Total Cadmium 2 1136 10/15/92 . 1 mg/kg Total Chromium 1136 10/15/92 .2 EPA Method 6010 RJC mg/kg EPA Method 7470 Total Mercury ND 1400 10/02/92 .05 SY mg/kg EPA Method 6010 Total Nickel 4.3 1244 10/14/92 RJC mg/kg .6 Total Lead 1136 10/15/92 EPA Method 6010 RJC mg/kg Total Zinc 1244 10/14/92 EPA Method 6010 RJC 6.6 mg/kg . 1 EPA Method 3050 Fl Metals Digestion - 3050 Fl Digested 50/4 0730 10/09/92 JHL Metals Digestion - 7471 Digested 50/1 EPA Method 7471 JHL 0845 10/02/92 EPA Method 8270 Acenaphthene ND ug/kg 1346 10/05/92 1000 PM Acenaphthylene ND 1346 10/05/92 1000 EPA Method 8270 PM ug/kg EPA Method 8270 Aldrin 1346 10/05/92 1000 ND ug/kg



Analytical Chemistry • Utility Operations

11/05/92

221855 Continued

Page 2

ARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	В
nthracene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	P
enzidine	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	P
enzo(a)anthracene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	P
enzo(a)pyrene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	P
enzo(b)fluoranthene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	ı
enzo(ghi)perylene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	1
enzo(k)fluoranthene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	ı
is(2-chloroethyl)ether	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	I
is(2-chloroethoxy)methane	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	ı
is(2-chloroisopropyl)ether	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
-Bromophenyl phenyl ether	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
is(2-ethylhexyl)phthalate	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
-Chlorophenyl phenyl ether	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
enzyl butyl phthalate	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
-Chloronaphthalene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
hrysene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
ibenzo(a,h)anthracene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
,3-Dichlorobenzene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
,2-Dichlorobenzene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
,4-Dichlorobenzene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
,3'-Dichlorobenzidine	ND	ug/kg	1346 10/05/92	2000	EPA Method 8270	
iethyl phthalate	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
imethyl phthalate	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	
Di-n-butylphthalate	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	



Analytical Chemistry • Utility Operations

11/05/92

221855 Continued

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Di-n-octylphthalate	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Fluorene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Isophorone	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Pyrene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM

Quality Assurance for the SET with Sample 221855

Sample #	Description	Result	Units	Dup/Std Value Spk Conc.	Percent	Time	Date	Ву
				Phenols				
	Blank	<.02	mg/l			1445	10/07/92	WMB
	Standard	.049	mg/l	.050	102	1445	10/07/92	WMB
221858	Duplicate	ND	mg/l	ND	100	1445	10/07/92	WMB



221855 Continued

Page 4

Sample #	Description	Result	Units	Dup/Std Value Spk Conc. Total Arsenic	Percent	Time	Date	Ву
		_		Total Arsenic		1136	10/15/92	RJC
	Blank	<.1	mg/l			1136	10/15/92	RJC
	Blank	<.1	mg/l	4.0	100	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0	110	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0	101	1136	10/15/92	RJC
	Standard	.99	mg/l	1.0		1136	10/15/92	RJC
	Standard	2.0	mg/l	2.0	100	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0	110		10/15/92	RJC
	Standard	.7	mg/l	.6	115	1136		RJC
	Standard	1.1	mg/l	1.0	110	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND	100	1136	10/15/92	
221715	Duplicate	1	mg/kg	1	100	1136	10/15/92	RJC
221855	Duplicate	5	mg/kg	3	150	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	5	100	1136	10/15/92	RJC
222319	Spike		mg/l	2.0	109	1136	10/15/92	RJC
221855	Spike		mg/l	2.0	93	1136	10/15/92	RJC
221864	Spike		mg/l	2.0	109	1136	10/15/92	RJC
221715	Spike		mg/l	5.0	89	1136	10/15/92	RJC
				Total Barium				
	Blank	.02	mg/l			1136	10/15/92	RJC
	Blank	<.01	mg/l			1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJC
	Standard	5.1	mg/l	5.0	102	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0	116	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0	105	1136	10/15/92	RJC
	Standard	10	mg/l	10	100	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJC
221715	Duplicate	580	mg/kg	560	104	1136	10/15/92	RJC
221855	Duplicate	200	mg/kg	180	111	1136	10/15/92	RJC
221864	Duplicate	22	mg/kg	20	110	1136	10/15/92	RJC
221864	Spike		mg/l	2.0	91	1136	10/15/92	RJC
221715	Spike		mg/l	5.0	110	1136	10/15/92	RJC
221855	Spike		mg/l	2.0	98	1136	10/15/92	RJC
				Total Cadmium				
	Blank	<.01	mg/l			1136	10/15/92	RJC
	Blank	<.01	mg/l			1136	10/15/92	RJC
	Standard	.53	mg/l	.50	106	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0	110	1136	10/15/92	RJC
	Standard	2.6	mg/l	2.5	104	1136	10/15/92	RJC
	Standard	.53	mg/l	.50	106	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0	116	1136	10/15/92	RJC
	Standard	.54	mg/l	.50	108	1136	10/15/92	RJC
	Standard	.52	mg/l	.50	104	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND	100	1136	10/15/92	RJC





11/05/92

221855 Continued

Page 5

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
221715	Duplicate	3	mg/kg	3		100	1136	10/15/92	RJ
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJ
221864	Duplicate	3.3	mg/kg	3.0		110	1136	10/15/92	RJ
222319	Spike		mg/l		2.0	96	1136	10/15/92	RU
221855	Spike		mg/l		2.0	91	1136	10/15/92	RJ
221864	Spike		mg/l		2.0	89	1136	10/15/92	RJ
221715	Spike		mg/l		2.0	104	1136	10/15/92	RJ
				Total Ch					-
	Blank	<.02	mg/l				1136	10/15/92	RJ
	Blank	<.02	mg/l				1136	10/15/92	RJ
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJ
	Standard	5.3	mg/l	5.0		106	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJ
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJ
	Standard	.11	mg/l	.10		110	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJ
222319	Duplicate	.02	mg/l	.02		100	1136	10/15/92	RJ
221715	Duplicate	11	mg/kg	15		131	1136	10/15/92	RJ
221855	Duplicate	8	mg/kg	7		113	1136	10/15/92	RJ
221864	Duplicate	14	mg/kg	12		115	1136	10/15/92	R.J
222319	Spike		mg/l		2.0	99	1136	10/15/92	RJ
221855	Spike		mg/l		2.0	94	1136	10/15/92	RJ
221864	Spike		mg/l		2.0	92	1136	10/15/92	RJ
221715	Spike		mg/l		5.0	92	1136	10/15/92	RJ
				Total Me	rcury				
	Blank	.001	mg/l				1400	10/02/92	SY
	Standard	.026	mg/l	.025		104	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.009	mg/l	.010		111	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
220412	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220803	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	S
220412	Spike		mg/l		.010	64	1400	10/02/92	SY
220803	Spike		mg/l		.010	99	1400	10/02/92	Sì
				Total N	ickel				
	Blank	<.05	mg/l				1244	10/14/92	R.
	Blank	<.05	mg/l				1244	10/14/92	R.
	Standard	.40	mg/l	.40		100	1244	10/14/92	R.
	Standard	2.1	mg/l	2.0		105	1244	10/14/92	R.
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	R.
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	R
	Standard	1.0	mg/l	1.0		100	1244	10/14/92	R.
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	R
	Standard	10	mg/l	10		100	1244	10/14/92	R.



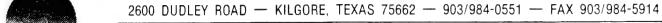
221855 Continued 11/05/92

Page 6

6I - #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
Sample #	Standard	5.5	mg/l	5.0		110	1244	10/14/92	RJC
222740		ND	mg/l	ND		100	1244	10/14/92	RJC
222319	Duplicate	8.4	mg/kg	9.1		108	1244	10/14/92	RJC
221715	Duplicate	4.6	mg/kg	4.0		114	1244	10/14/92	RJC
221855	Duplicate	4.0	mg/kg	7.0	2.0	99	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	88	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	92	1244	10/14/92	RJC
221855	Spike		mg/ t	Total					
	etl.	. 1	ma / 1	10041			1136	10/15/92	RJC
	Blank	<.1	mg/l mg/l				1136	10/15/92	RJC
	Blank	<.1		1.0		100	1136	10/15/92	RJC
	Standard	1.0	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	2.1	mg/l			104	1136	10/15/92	RJC
	Standard	5.2	mg/l	5.0		110	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		111	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		103	1136	10/15/92	RJC
	Standard	.62	mg/l	.60		100	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0			1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100		10/15/92	RJC
221864	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	95	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	90	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221715	Spike		mg/l	m . 1 . 2	5.0	89	1136	10/15/92	KJC.
				Total	Zinc		45//	10/1//02	RJC
	Blank	<.01	mg/l				1244	10/14/92	RJC
	Blank	.02	mg/l				1244	10/14/92	RJC
	Standard	.21	mg/l	.20		105	1244	10/14/92	RJC
	Standard	2.0	mg/l	2.0		100	1244	10/14/92	
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.1	mg/l	1.0		110	1244	10/14/92	RJC
	Standard	5.3	mg/l	5.0		106	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC
222319	Duplicate	.80	mg/l	.77		104	1244	10/14/92	RJC
221715	Duplicate	14	mg/kg	16		113	1244	10/14/92	RJC
221855	Duplicate	7.3	mg/kg	5.9		121	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	95	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	93	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	95	1244	10/14/92	RJC

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President 253





11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-B06-SS1 13'-17'

Collected By:

Date & Time Taken:

09/25/92

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

221856 Received: 09/28/92

METHOD BY PARAMETER RESULTS UNITS ANALYZED EOL Total Sonic Extraction 10->1 1303 09/30/92 EPA Method 3550 DDM g->ml EPA Method 8270 1438 10/05/92 1000 2-Methylnaphthalene PM nd ug/kg 1445 10/07/92 EPA Method 420.1 Phenols mg/kg **LIMB** EPA Method 420.1 Phenol Distillation DISTILLED 1730 10/06/92 WKC EPA Method 6010 Total Arsenic mg/kg 1136 10/15/92 RJC EPA Method 6010 Total Barium 150 mg/kg 1136 10/15/92 .1 RJC EPA Method 6010 Total Cadmium mg/kg 1136 10/15/92 .1 RJC Total Chromium mg/kg 1136 10/15/92 .2 EPA Method 6010 RJC 1400 10/02/92 .05 EPA Method 7470 SY Total Mercury ND mg/kg Total Nickel 1244 10/14/92 EPA Method 6010 RJC 3.8 mg/kg Total Lead mg/kg 1136 10/15/92 EPA Method 6010 RJC EPA Method 6010 Total Zinc 7.1 mg/kg 1244 10/14/92 .1 RJC EPA Method 3050 Fl Metals Digestion - 3050 Fl Digested 50/4 0730 10/08/92 JHL Metals Digestion - 7471 Digested 50/1 0845 10/02/92 EPA Method 7471 JHL 1000 EPA Method 8270 PM 1438 10/05/92 Acenaphthene ND ug/kg Acenaphthylene ND 1438 10/05/92 1000 EPA Method 8270 PM ug/kg EPA Method 8270 PM Aldrin 1438 10/05/92 1000 ug/kg



Analytical Chemistry • Utility Operations

221856 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Anthracene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzidine	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
		ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg		1000	2,7,1100000	
Benzo(b)fluoranthene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Chrysene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1438 10/05/92	2000	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM



11/05/92

221856 Continued

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Di-n-octylphthalate	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PH
Fluorene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Isophorone	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Pyrene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM

Quality Assurance for the SET with Sample 221856

Description	Result	Units	Dup/Std Value Spk Conc.	Percent	Time	Date	By
•			Phenols				
Blank	<.02	mg/l			1445	10/07/92	WMB
Standard	.049	mg/l	.050	102	1445	10/07/92	WMB
Duplicate	ND	mg/l	ND	100	1445	10/07/92	WMB
	Description Blank Standard	Description Result Blank <.02 Standard .049	Description Result Units Blank <.02 mg/l Standard .049 mg/l	Phenols Blank <.02 mg/l Standard .049 mg/l .050	Description Result Units Dup/Std Value Spk Conc. Percent Phenols Blank <.02 mg/l Standard .049 mg/l .050 102	Description Result Units Dup/Std Value Spk Conc. Percent Time Phenols Blank <.02 mg/l .050 102 1445	Description Result Units Dup/Std Value Spk Conc. Percent Time Date



11/05/92

221856 Continued

Page 4

Sample #	Description	Result	Units	Dup/Std Value Spk Conc. Total Arsenic	Percent	Time	Date	В
	Blank	<.1	mg/l			1136	10/15/92	R
	Blank	<.1	mg/l			1136	10/15/92	R
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	R
	Standard	2.2	mg/l	2.0	110	1136	10/15/92	R
	Standard	.99	mg/l	1.0	101	1136	10/15/92	R
	Standard	2.0	mg/l	2.0	100	1136	10/15/92	R
	Standard	1.1	mg/l	1.0	110	1136	10/15/92	R
	Standard	.7	mg/l	.6	115	1136	10/15/92	F
	Standard	1.1	mg/l	1.0	110	1136	10/15/92	R
222319	Duplicate	ND	mg/l	ND	100	1136	10/15/92	F
221715	Duplicate	1	mg/kg	1	100	1136	10/15/92	F
221855	Duplicate	5	mg/kg	3	150	1136	10/15/92	ş
221864	Duplicate	5	mg/kg	5	100	1136	10/15/92	i
222319	Spike	-	mg/l	2.0	109	1136	10/15/92	
221855	Spike		mg/l	2.0	93	1136	10/15/92	1
221864	Spike		mg/l	2.0	109	1136	10/15/92	
221715	Spike		mg/l	5.0	89	1136	10/15/92	
221715	Spike		mg/ t	Total Barium				
	Blank	.02	mg/l	20012 21122		1136	10/15/92	
	Blank	<.01	mg/t			1136	10/15/92	
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	
	Standard	5.1	mg/l	5.0	102	1136	10/15/92	
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	
	Standard	1.7	mg/l	2.0	116	1136	10/15/92	
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	
	Standard	2.1	mg/l	2.0	105	1136	10/15/92	
	Standard	10	mg/l	10	100	1136	10/15/92	
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	
24745		580	mg/kg	560	104	1136	10/15/92	
221715	Duplicate	200	mg/kg	180	111	1136	10/15/92	
221855	Duplicate	22		20	110	1136	10/15/92	
221864	Duplicate	22	mg/kg mg/l	2.0	91	1136	10/15/92	
221864	Spike			5.0	110	1136	10/15/92	
221715	Spike		mg/l	2.0	98	1136	10/15/92	
221855	Spike		mg/l	Total Cadmium	70	,1150	10, 13, 72	
	-1	. 04	(1	Total Cadmium		1136	10/15/92	
	Blank	<.01	mg/l			1136	10/15/92	
	Blank	<.01	mg/l	50	106	1136	10/15/92	
	Standard	.53	mg/l	.50	106	1136	10/15/92	
	Standard	2.2	mg/t	2.0	110	1136	10/15/92	
	Standard	2.6	mg/l	2.5	104	1136	10/15/92	
	Standard	.53	mg/l	.50	106		10/15/92	
	Standard	1.7	mg/l	2.0	116	1136	10/15/92	
	Standard	.54	mg/l	.50	108	1136	10/15/92	
	Standard	.52	mg/l	.50	104	1136	10/15/92	
222319	Duplicate	ND	mg/l	ND	100	1136	10/13/74	



11/05/92

221856 Continued

Page 5

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
221715	Duplicate	3	mg/kg	3		100	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJO
221864	Duplicate	3.3	mg/kg	3.0		110	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	96	1136	10/15/92	£ 10
221855	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	89	1136	10/15/92	RJC
221715	Spike		mg/l		2.0	104	1136	10/15/92	RJC
				Total Ch	romium				•
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	5.3	mg/l	5.0		106	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	.11	mg/l	.10		110	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	.02	mg/l	.02		100	1136	10/15/92	RJC
221715	Duplicate	11	mg/kg	15		131	1136	10/15/92	RJC
221855	Duplicate	8	mg/kg	7		113	1136	10/15/92	RJC
221864	Duplicate	14	mg/kg	12		115	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	99	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	94	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	92	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	92	1136	10/15/92	RJC
				Total Me	rcury				
	Blank	.001	mg/l				1400	10/02/92	SY
	Standard	.026	mg/l	.025		104	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.009	mg/l	.010		111	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
220412	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220803	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	ŞY
220412	Spike		mg/l		.010	64	1400	10/02/92	SY
220803	Spike		mg/l	Total N	.010 ickel	99	1400	10/02/92	SY
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Standard	.40	mg/l	.40		100	1244	10/14/92	RJC
	Standard	2.1	mg/l	2.0		105	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.0	mg/l	1.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC



Analytical Chemistry • Utility Operations

221856 Continued

Page 6

					0-1-0	Donooma	Time	Date	В
Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent 110	11me 1244	10/14/92	R
	Standard	5.5	mg/l	5.0			1244	10/14/92	R
22319	Duplicate	ND	mg/l	ND		100			R
21715	Duplicate	8.4	mg/kg	9.1		108	1244	10/14/92	F
21855	Duplicate	4.6	mg/kg	4.0		114	1244	10/14/92	
222319	Spike		mg/l		2.0	99	1244	10/14/92	1
21715	Spike		mg/l		2.0	88	1244	10/14/92	
21855	Spike		mg/l		2.0	92	1244	10/14/92	1
				Total :	Lead				
	Blank	<.1	mg/l				1136	10/15/92	1
	Blank	<.1	mg/l				1136	10/15/92	
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	
	Standard	5.2	mg/l	5.0		104	1136	10/15/92	
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	
	Standard	.62	mg/l	.60		103	1136	10/15/92	
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	
22319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	
21715	Duplicate	5	mg/kg	4		122	1136	10/15/92	
21855	Duplicate	2	mg/kg	2		100	1136	10/15/92	
21864	Duplicate	5	mg/kg	4		122	1136	10/15/92	
22319	Spike	-	mg/l	·	2.0	95	1136	10/15/92	
21855	Spike		mg/l		2.0	90	1136	10/15/92	
21864	Spike		mg/l		2.0	93	1136	10/15/92	
	Spike		mg/l		5.0	89	1136	10/15/92	
21715	Spike		mg/ t	Total		•		, .	
	Blank	<.01	mg/l	20011			1244	10/14/92	
	Blank	.02	mg/l				1244	10/14/92	
		.21	mg/l	.20		105	1244	10/14/92	
	Standard			2.0		100	1244	10/14/92	
	Standard	2.0	mg/l	5.0		104	1244	10/14/92	
	Standard	5.2	mg/l			111	1244	10/14/92	
	Standard	1.8	mg/l	2.0		110	1244	10/14/92	
	Standard	1.1	mg/l	1.0			1244	10/14/92	
	Standard	5.3	mg/l	5.0		106			
	Standard	10	mg/l	10		100	1244	10/14/92	
22319	Duplicate	.80	mg/l	.77		104	1244	10/14/92	
21715	Duplicate	14	mg/kg	16		113	1244	10/14/92	
21855	Duplicate	7.3	mg/kg	5.9		121	1244	10/14/92	
222319	Spike		mg/l		2.0	95	1244	10/14/92	
221715	Spike		mg/l		2.0	93	1244	10/14/92	
221855	Spike		mg/l		2.0	95	1244	10/14/92	

I certify that the results were generated using the above specified methods.

Whiteside, Ph.D., President 259



11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-B06-SS1 @13'-17'

Collected By: JPJ

Date & Time Taken:

09/25/92 1140

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221839 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/kg	0756 10/28/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0756 10/28/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM

Analytical Chemistry • Utility Operations

221839 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodiflouromethane	ND	ug/kg	0756 10/28/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Xylenes	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-B07-SS1 @16'

Collected By:

Date & Time Taken:

09/25/92 1300

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

221857

Received: 09/28/92

PARAMETER RESULTS UNITS ANALYZED EOL METHOD BY Total Sonic Extraction 10->1 1456 09/30/92 EPA Method 3550 g->ml DDM 2-Methylnaphthalene ug/kg 1248 10/05/92 1000 EPA Method 8270 Phenols mg/kg 1445 10/07/92 EPA Method 420.1 Phenol Distillation DISTILLED 1730 10/06/92 EPA Method 420.1 **UKC** Total Arsenic mg/kg 1136 10/15/92 EPA Method 6010 RJC Total Barium 58 1136 10/15/92 EPA Method 6010 mg/kg _ 1 RJC Total Cadmium .8 1136 10/15/92 EPA Method 6010 mg/kg .1 RJC Total Chromium 3 1136 10/15/92 .2 EPA Method 6010 RJC mg/kg Total Mercury 1400 10/02/92 EPA Method 7470 .06 .05 mg/kg SY Total Nickel 2.0 1244 10/14/92 EPA Method 6010 mg/kg .6 RJC Total Lead 1 mg/kg 1136 10/15/92 EPA Method 6010 1 RJC Total Zinc 2.6 EPA Method 6010 mg/kg 1244 10/14/92 . 1 RJC Metals Digestion - 3050 Fl Digested 50/4 0730 10/08/92 EPA Method 3050 Fl JHL Metals Digestion - 7471 Digested 50/1 EPA Method 7471 0845 10/02/92 JHL Acenaphthene ND ug/kg 1248 10/05/92 1000 EPA Method 8270 DM Acenaphthylene ND 1248 10/05/92 1000 EPA Method 8270 ug/kg Aldrin 1248 10/05/92 1000 EPA Method 8270 ug/kg



Analytical Chemistry • Utility Operations

11/05/92

221857 Continued

Page 2

			23727	DOT	MEMILOS	DV
PARAMETER	RESULTS ND	UNITS ug/kg	ANALYZED 1248 10/05/92	EQL 1000	METHOD EPA Method 8270	BY PM
Anthracene	ND	ug/kg	1240 10/03/92	1000	ETA MECHOO SETS	• • • • • • • • • • • • • • • • • • • •
Benzidine	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
2-Chloronaphthalene	ND .	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Chrysene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1248 10/05/92	2000	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM



11/05/92

221857 Continued

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Di-n-octylphthalate	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PŘ
1,2-DPH (as azobenzene)	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Fluorene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Hexach lorobenzene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Hexach! oroethane	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Isophorone	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	P M
Phenanthrene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Pyrene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM

Quality Assurance for the SET with Sample 221857

	• • • • • •	• • • • •		• • • • • • •	• • • • • •		
Description	Result	Units	Dup/Std Value Spk Conc.	Percent	Time	Date	Ву
			FILEHOTS				
Blank	<.02	mg/l			1445	10/07/92	WMB
Standard	.049	mg/l	.050	102	1445	10/07/92	WMB
Duplicate	ND	mg/l	ND	100	1445	10/07/92	WMB
	Description Blank Standard	Description Result Blank <.02 Standard .049	Description Result Units Blank <.02 mg/l Standard .049 mg/l	Phenols Blank <.02 mg/l Standard .049 mg/l .050	Description Result Units Dup/Std Value Spk Conc. Percent Phenols Blank <.02 mg/l Standard .049 mg/l .050 102	Description Result Units Dup/Std Value Spk Conc. Percent Time Phenols	Description Result Units Dup/Std Value Spk Conc. Percent Time Date Phenols Blank <.02 mg/l



11/05/92

2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

221857 Continued

Page 4

Sample #	Description	Result	Units	Dup/Std Value Spk Conc. Total Arsenic	Percent	Time	Date	Ву
	Blank	<.1	mg/l	10001		1136	10/15/92	RJ
	Blank	<.1	mg/l			1136	10/15/92	RJO
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJ
	Standard	2.2	mg/l	2.0	110	1136	10/15/92	RJ
	Standard	.99	mg/l	1.0	101	1136	10/15/92	RJ
	Standard	2.0	mg/l	2.0	100	1136	10/15/92	RJ
	Standard	1.1	mg/l	1.0	110	1136	10/15/92	RJ
	Standard	.7	mg/l	.6	115	1136	10/15/92	RJ
	Standard	1.1	mg/l	1.0	110	1136	10/15/92	RJ
222319	Duplicate	ND	mg/l	ND	100	1136	10/15/92	RJ
221715	Duplicate	1	mg/kg	1	100	1136	10/15/92	RJ
221855	Duplicate	5	mg/kg	3	150	1136	10/15/92	RJO
221864	Duplicate	5	mg/kg	5	100	1136	10/15/92	RJO
222319	Spike		mg/l	2.0	109	1136	10/15/92	RJ
221855	Spike		mg/l	2.0	93	1136	10/15/92	RJ
221864	Spike		mg/l	2.0	109	1136	10/15/92	RJ
221715	Spike		mg/l	5.0	89	1136	10/15/92	RJ
	•			Total Barium				
	Blank	.02	mg/l			1136	10/15/92	RJ(
	Blank	<.01	mg/l			1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJ
	Standard	5.1	mg/l	5.0	102	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJ
	Standard	1.7	mg/l	2.0	116	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJ
	Standard	2.1	mg/l	2.0	105	1136	10/15/92	RJI
	Standard	10	mg/l	10	100	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJI
221715	Duplicate	580	mg/kg	560	104	1136	10/15/92	RJ(
221855	Duplicate	200	mg/kg	180	111	1136	10/15/92	RJ
221864	Duplicate	22	mg/kg	20	110	1136	10/15/92	RJ
221864	Spike		mg/l	2.0	91	1136	10/15/92	RJ
221715	Spike		mg/l	5.0	110	1136	10/15/92	RJ
221855	Spike		mg/l	2.0	98	1136	10/15/92	RJ
				Total Cadmium				
	Blank	<.01	mg/l			1136	10/15/92	RJ
	Blank	<.01	mg/l			1136	10/15/92	RJ
	Standard	.53	mg/l	.50	106	1136	10/15/92	RJ
	Standard	2.2	mg/l	2.0	110	1136	10/15/92	RJ
	Standard	2.6	mg/l	2.5	104	1136	10/15/92	RJ
	Standard	.53	mg/l	.50	106	1136	10/15/92	RJ
	Standard	1.7	mg/l	2.0	116	1136	10/15/92	RJ
	Standard	.54	mg/l	.50	108	1136	10/15/92	RJ
	Standard	.52	mg/l	.50	104	1136	10/15/92	RJ
222319	Duplicate	ND	mg/l	ND	100	1136	10/15/92	RJ



11/05/92

221857 Continued

Page 5

									
Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
221715	Duplicate	3	mg/kg	3		100	1136	10/15/92	RJ
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJO
221864	Duplicate	3.3	mg/kg	3.0		110	1136	10/15/92	RJ
222319	Spike		mg/l		2.0	96	1136	10/15/92	7k J (
221855	Spike		mg/l		2.0	91	1136	10/15/92	RJO
221864	Spike		mg/l		2.0	89	1136	10/15/92	RJC
221715	Spike		mg/l		2.0	104	1136	10/15/92	RJC
	•			Total Ch					•
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	5.3	mg/l	5.0		106	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	.11	mg/l	.10		110	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	.02	mg/l	.02		100	1136	10/15/92	RJC
221715	Duplicate	11	mg/kg	15		131	1136	10/15/92	RJC
221855	Duplicate	8	mg/kg	7		113	1136	10/15/92	RJC
221864	Duplicate	14	mg/kg	12		115	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	99	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	94	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	92	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	92	1136	10/15/92	RJC
				Total Me	rcury				
	Blank	.001	mg/l				1400	10/02/92	SY
	Standard	.026	mg/l	.025		104	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.009	mg/l	.010		111	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
220412	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220803	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220412	Spike		mg/l		.010	64	1400	10/02/92	SY
220803	Spike		mg/l		.010	99	1400	10/02/92	SY
			•	Total N			.,,,,	10,02,72	•
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Standard	.40	mg/l	.40		100	1244	10/14/92	RJC
	Standard	2.1	mg/l	2.0		105	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.0	mg/l	1.0		100	1244	10/14/92	KJL.
	Standard Standard	1.0 5.2	mg/l mg/l	1.0 5.0		100 104	1244 1244	10/14/92 10/14/92	RJC RJC



221857 Continued

Page 6

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Standard	5.5	mg/l	5.0	•	110	1244	10/14/92	RJ
222319	Duplicate	ND	mg/l	ND		100	1244	10/14/92	RJ
221715	Duplicate	8.4	mg/kg	9.1		108	1244	10/14/92	RJ
221855	Duplicate	4.6	mg/kg	4.0		114	1244	10/14/92	RJ
222319	Spike		mg/l		2.0	99	1244	10/14/92	RJ
221715	Spike		mg/l		2.0	88	1244	10/14/92	RJ
221855	Spike		mg/l		2.0	92	1244	10/14/92	RJ
	- F · · · ·			Total				,,	
	Blank	<.1	mg/l				1136	10/15/92	RJ
	Blank	<.1	mg/l				1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJ
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJ(
	Standard	5.2	mg/l	5.0		104	1136	10/15/92	RJO
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJO
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJO
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJO
	Standard	.62	mg/l	.60		103	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJO
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJO
221715	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJO
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJO
221864	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJO
222319	Spike		mg/l		2.0	95	1136	10/15/92	RJO
221855	Spike		mg/l		2.0	90	1136	10/15/92	RJO
221864	Spike		mg/l		2.0	93	1136	10/15/92	RJO
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJO
	,		_	Total	Zinc				
	Blank	<.01	mg/l				1244	10/14/92	RJC
	Blank	.02	mg/l				1244	10/14/92	RJC
	Standard	.21	mg/l	.20		105	1244	10/14/92	RJC
	Standard	2.0	mg/l	2.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.1	mg/l	1.0		110	1244	10/14/92	RJC
	Standard	5.3	mg/l	5.0		106	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC
22319	Duplicate	.80	mg/l	.77		104	1244	10/14/92	RJC
21715	Duplicate	14	mg/kg	16		113	1244	10/14/92	RJC
21855	Duplicate	7.3	mg/kg	5.9		121	1244	10/14/92	RJC
22319	Spike		mg/l		2.0	95	1244	10/14/92	RJC
21715	Spike		mg/l		2.0	93	1244	10/14/92	RJC
21855	Spike		mg/l		2.0	95	1244	10/14/92	RJC

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President 267



11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-B08-SS1 @16'

Collected By:

Date & Time Taken:

09/25/92 1600

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221858

Received: 09/28/92

PARAMETER RESULTS UNITS METHOD BY ANALYZED EOL Total Sonic Extraction 30->1 1450 09/30/92 EPA Method 3550 g->ml DDM 2-Methylnaphthalene nd ug/kg 1544 10/05/92 330 EPA Method 8270 Phenols mg/kg 1445 10/07/92 EPA Method 420.1 WMB Phenol Distillation DISTILLED 1730 10/06/92 EPA Method 420.1 WKC Total Arsenic mg/kg 1136 10/15/92 EPA Method 6010 RJC Total Barium 630 mg/kg 1136 10/15/92 . 1 EPA Method 6010 RJC Total Cadmium 1136 10/15/92 EPA Method 6010 mg/kg . 1 RJIC Total Chromium 17 1136 10/15/92 EPA Method 6010 .2 RJC mg/kg Total Mercury 1400 10/02/92 EPA Method 7470 . 4 mg/kg 05 SY Total Nickel 13 mg/kg 1244 10/14/92 .6 EPA Method 6010 RJC Total Lead 1136 10/15/92 EPA Method 6010 mg/kg RJC Total Zinc 20 mg/kg 1244 10/14/92 . 1 EPA Method 6010 RJC Metals Digestion - 3050 Fl Digested 50/4 0730 10/09/92 EPA Method 3050 Fl JHL Metals Digestion - 7471 Digested 50/1 0845 10/02/92 EPA Method 7471 JHL Acenaphthene ND ug/kg 1544 10/05/92 330 EPA Method 8270 Acenaphthylene ND 1544 10/05/92 EPA Method 8270 ug/kg 330 PM Aldrin 1544 10/05/92 ug/kg 330 EPA Method 8270 PM



Analytical Chemistry • Utility Operations

221858 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	ВУ
Anthracene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzidine	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1544 10/05/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM



Analytical Chemistry • Utility Operations

11/05/92

221858 Continued

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Di-n-octylphthalate	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PÑ
1,2-DPH (as azobenzene)	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM

Quality Assurance for the SET with Sample 221858

		· • • • • • •						
Sample #	Description	Result	Units	Dup/Std Value Spk Conc. Phenols	Percent	Time	Date	Ву
	Blank	<.02	mg/l			1445	10/07/92	WMB
	Standard	.049	mg/l	.050	102	1445	10/07/92	WMB
221858	Duplicate	ND	mg/l	ND	100	1445	10/07/92	WMB



221858 Continued

Page 4

Sample #	Description	Result	Units	Dup/Std Value Spk Conc. Total Arsenic	Percent	Time	Date	Ву
	Blank	<.1	mg/l			1136	10/15/92	RJC
	Blank	<.1	mg/l			1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0	110	1136	10/15/92	RJC
	Standard	.99	mg/l	1.0	101	1136	10/15/92	RJC
	Standard	2.0	mg/l	2.0	100	1136	10/15/92	RJC
	Standard	1.1	mg/t	1.0	110	1136	10/15/92	RJC
	Standard	.7	mg/l	.6	115	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0	110	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND	100	1136	10/15/92	RJC
221715	Duplicate	1	mg/kg	1	100	1136	10/15/92	RJC
221855	Duplicate	5	mg/kg	3	150	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	5	100	1136	10/15/92	RJC
222319	Spike	-	mg/l	2.0	109	1136	10/15/92	RJC
221855	Spike		mg/l	2.0	93	1136	10/15/92	RJC
221864	Spike		mg/l	2.0	109	1136	10/15/92	RJC
221715	Spike		mg/l	5.0	89	1136	10/15/92	RJC
221713	op			Total Barium				
	Blank	.02	mg/l			1136	10/15/92	RJC
	Blank	<.01	mg/l			1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJC
	Standard	5.1	mg/l	5.0	102	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0	116	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0	105	1136	10/15/92	RJC
	Standard	10	mg/l	10	100	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0	100	1136	10/15/92	RJC
221715	Duplicate	580	mg/kg	560	104	1136	10/15/92	RJC
221855	Duplicate	200	mg/kg	180	111	1136	10/15/92	RJC
221864	Duplicate	22	mg/kg	20	110	1136	10/15/92	RJC
221864	Spîke		mg/l	2.0	91	1136	10/15/92	RJC
221715	Spike		mg/l	5.0	110	1136	10/15/92	RJC
221855	Spike		mg/l	2.0	98	1136	10/15/92	RJC
				Total Cadmium				
	Blank	<.01	mg/l			1136	10/15/92	RJC
	Blank	<.01	mg/l			1136	10/15/92	RJC
	Standard	.53	mg/l	.50	106	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0	110	1136	10/15/92	RJC
	Standard	2.6	mg/l	2.5	104	1136	10/15/92	RJC
	Standard	.53	mg/l	.50	106	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0	116	1136	10/15/92	RJC
	Standard	.54	mg/l	.50	108	1136	10/15/92	RJC
	Standard	.52	mg/l	.50	104	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND	100	1136	10/15/92	RJC





11/05/92	221858	Continued
•		

Page 5

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
221715	Duplicate	3	mg/kg	3		100	1136	10/15/92	R
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	R
221864	Duplicate	3.3	mg/kg	3.0		110	1136	10/15/92	R
222319	Spike		mg/l		2.0	96	1136	10/15/92	Ř.
221855	Spike		mg/l		2.0	91	1136	10/15/92	R
221864	Spike		mg/l		2.0	89	1136	10/15/92	R.
221715	Spike		mg/l	Total Ch	2.0	104	1136	10/15/92	Ŗ
	Blank	<.02	mg/l	TOTAL CIL	LOMIUM		1136	10/15/92	R.
	Blank	<.02	mg/l				1136	10/15/92	R.
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	R.
	Standard	5.3	mg/l	5.0		106	1136	10/15/92	R
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	R.
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	R.J
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	R.J
	Standard	.11	mg/l	.10		110	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJ
222319	Duplicate	.02	mg/l	.02		100	1136		
221715	Duplicate	11	mg/kg	15		131		10/15/92	RJ
221855	Duplicate	8		7			1136	10/15/92	R.J
221864	Duplicate	14	mg/kg mg/kg	12		113 115	1136	10/15/92	RJ
222319	Spike	14	mg/kg	12	2.0	99	1136	10/15/92	RJ
221855	Spike				2.0		1136	10/15/92	RJ
221864	Spike		mg/l mg/l		2.0	94	1136	10/15/92	RJ
221715	Spike		mg/t		5.0	92 92	1136	10/15/92	RJ
21115	Spike		mg/ t	Total Men		92	1136	10/15/92	RJ
	Blank	.001	mg/l				1400	10/02/92	SY
	Standard	.026	mg/l	.025		104	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.009	mg/l	.010		111	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
220412	Duplicate	ND	mg/kg	ND ND		100	1400		SY
20803	Duplicate	ND		ND		100		10/02/92 10/02/92	
220412	Spike	ND	mg/kg	NU	010	64	1400		SY
20803	Spike		mg/l		.010		1400	10/02/92	SY
.20003	Spike		mg/l	Total N:	.010 ickel	99	1400	10/02/92	SY
	Blank	<.05	mg/l				1244	10/14/92	RJ
	Blank	<.05	mg/l				1244	10/14/92	RJ
	Standard	.40	mg/l	.40		100	1244	10/14/92	RJ
	Standard	2.1	mg/l	2.0		105	1244	10/14/92	RJ
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJ
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJ
	Standard	1.0	mg/l	1.0		100	1244	10/14/92	RJ
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJ
	Standard	10	mg/l	10		100	1244	10/14/92	RJ



Analytical Chemistry • Utility Operations

221858 Continued 11/05/92

Page 6

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Standard	5.5	mg/l	5.0		110	1244	10/14/92	RJ
222319	Duplicate	ND	mg/l	ND		100	1244	10/14/92	RJ
221715	Duplicate	8.4	mg/kg	9.1		108	1244	10/14/92	RJ
221855	Duplicate	4.6	mg/kg	4.0		114	1244	10/14/92	RJ
222319	Spike		mg/l		2.0	99	1244	10/14/92	RJ
221715	Spike		mg/l		2.0	88	1244	10/14/92	RJ
221855	Spike		mg/l		2.0	92	1244	10/14/92	RJ
				Total :	Lead				
	Blank	<.1	mg/l				1136	10/15/92	RJ
	Blank	<.1	mg/l				1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJ
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJ
	Standard	5.2	mg/l	5.0		104	1136	10/15/92	RJ(
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJ
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJ
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJ
	Standard	.62	mg/l	.60		103	1136	10/15/92	RJ
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJ
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJ
221715	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJ
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJ
221864	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJ
222319	Spike	•	mg/l	•	2.0	95	1136	10/15/92	RJ
221855	Spike		mg/l		2.0	90	1136	10/15/92	RJ
221864	Spike		mg/l		2.0	93	1136	10/15/92	RJ
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJ
221713	Spike			Total					
	Blank	<.01	mg/l				1244	10/14/92	RJ
	Blank	.02	mg/l				1244	10/14/92	RJ
	Standard	.21	mg/l	.20		105	1244	10/14/92	RJ
	Standard	2.0	mg/l	2.0		100	1244	10/14/92	RJ
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJ
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJ
	Standard	1.1	mg/l	1.0		110	1244	10/14/92	RJ
	Standard	5.3	mg/l	5.0		106	1244	10/14/92	RJ
	Standard	10	mg/l	10		100	1244	10/14/92	RJ
222319	Duplicate	.80	mg/l	.77		104	1244	10/14/92	RJ
221715	Duplicate	14	mg/kg	16		113	1244	10/14/92	RJ
221855	Duplicate	7.3	mg/kg	5.9		121	1244	10/14/92	RJ
222319	Spike	,	mg/kg	J.,	2.0	95	1244	10/14/92	RJ
221715	Spike		mg/l		2.0	93	1244	10/14/92	RJ
221855	Spike		mg/l		2.0	95	1244	10/14/92	RJ

I certify that the results were generated using the above specified methods.



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-B08-SS1 @16'

Collected By:

JPJ

Date & Time Taken:

09/25/92 1600

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221840 Received: 09/28/92

BY UNITS ANALYZED EOL METHOD PARAMETER RESULTS 0830 10/28/92 100 EPA Method 8240 PM Acrolein ND ug/kg 0830 10/28/92 100 EPA Method 8240 PM Acrylonitrile ug/kg ND ND ug/kg 0830 10/28/92 5.0 EPA Method 8240 PM Benzene 0830 10/28/92 5.0 EPA Method 8240 PM ND ug/kg Bromoform 0830 10/28/92 EPA Method 8240 PM ug/kg Bromomethane ND Carbon Tetrachloride 0830 10/28/92 5.0 EPA Method 8240 PM ND ug/kg EPA Method 8240 0830 10/28/92 5.0 PM Chlorobenzene ND ug/kg 0830 10/28/92 10 EPA Method 8240 Chloroethane ND ug/kg 0830 10/28/92 10 EPA Method 8240 2-Chloroethylvinyl ether ug/kg ND EPA Method 8240 0830 10/28/92 5.0 Chloroform ND ug/kg Chloromethane 0830 10/28/92 10 EPA Method 8240 ND ug/kg EPA Method 8240 PM 0830 10/28/92 5.0 Dibromochloromethane ND ug/kg 0830 10/28/92 EPA Method 8240 5.0 Bromodichloromethane ND ug/kg 0830 10/28/92 5.0 EPA Method 8240 PM 1,1-Dichloroethane ND ug/kg EPA Method 8240 PM 0830 10/28/92 5.0 1,2-Dichloroethane ND ug/kg EPA Method 8240 PM 1,1-Dichloroethene ND ug/kg 0830 10/28/92 5.0 EPA Method 8240 PM 5.0 trans-1,2-Dichloroethene ND ug/kg 0830 10/28/92



Analytical Chemistry • Utility Operations

11/05/92 221840 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodiflouromethane	ND	ug/kg	0830 10/28/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0830 10/28/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0830 10/28/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Xylenes	ND	ug/kg	0830 10/28/92	10	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President

APPENDIX H

ANALYTICAL RESULTS FROM WATER SAMPLES FROM INDUSTRIAL WASTEWATER TREATMENT PLANT



Analytical Chemistry • Utility Operations

11/05/92

Client: ARS1

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-G1

Collected By:

Date & Time Taken:

09/25/92 1624

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data:

WTP-B05, B06, B07 Composite 14'-17' 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number:

221859

Received: 09/28/92

PARAMETER RESULTS UNITS ANALYZED EOL METHOD BY TCLP Liquid-Liquid Extraction 1000->1 ml->ml 2238 10/08/92 EPA Method 3510 LM TCLP Liq-Liq Extr. W/Hex Exch. 1000->2 ml->ml 2245 10/08/92 EPA Method 3510 LM TCLP ZHE Volatile Extraction 100.0% Sol Completed. 1430 10/06/92 EPA Method 1311 LM TCLP Extraction SOLID EXT #1 1510 10/02/92 EPA Method 1311 RJH Esterification of Sample Extract Completed. 1500 10/13/92 EPA Method 8150 KR TCLP Benzene (Reg. Limit 0.5) mg/l 1747 10/30/92 0.005 EPA Method 8240-TCLP PΜ TCLP Gamma-BHC (Lindane) (.4) ND 1420 10/13/92 mg/l EPA Method 8080-TCLP 0.00008 KB TCLP Carbon Tetrachloride (.5) ND mg/l 1747 10/30/92 0.005 EPA Method 8240-TCLP PM TCLP Chlordane (Reg. Limit 0.03) ND mg/l 1420 10/13/92 0.00028 EPA Method 8080-TCLP ΚB TCLP Chlorobenzene (Limit 100) mg/l 1747 10/30/92 0.005 EPA Method 8240-TCLP PM TCLP Chloroform (Reg. Limit 6.0) ND mq/l 1747 10/30/92 EPA Method 8240-TCLP 0.005 PM TCLP 1,4 Dichlorobenzene: RL 7.5 ND mg/l 1136 11/03/92 0.01 EPA Method 8270-TCLP 221 TCLP 1,2-Dichloroethane (RL .5) ND 1747 10/30/92 mg/l 0.005 EPA Method 8240-TCLP PM TCLP 1,1-Dichloroethene (.7) ND mg/l 1747 10/30/92 0.005 EPA Method 8240-TCLP PM TCLP 2,4-Dinitrotoluene (.13) mg/l 1136 11/03/92 0.01 EPA Method 8270-TCLP 221 TCLP Endrin (Reg. Limit 0.02) 1420 10/13/92 ma/l 0.00012 EPA Method 8080-TCLP KB TCLP Heptachlor (Limit .008) 1420 10/13/92 ma/L 0.00006 EPA Method 8080-TCLP KΒ



Analytical Chemistry • Utility Operations

221859 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Heptachlor Epoxide (.008)	ND	mg/l	1420 10/13/92	0.0017	EPA Method 8080-TCLP	KB
TCLP Hexachlorobenzene (.13)	ND	mg/l	1136 11/03/92	0.05	EPA Method 8270-TCLP	221
TCLP Hexachlorobutadiene (.5)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP Hexachlorethane (Limit 3)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP Nitrobenzene (Limit 2)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP Pentachlorophenol (100)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP Tetrachloroethylene (.7)	ND	mg/l	1747 10/30/92	0.005	EPA Method 8240-TCLP	PM
TCLP Toxaphene (Reg. Limit 0.5)	ND	mg/l	1420 10/13/92	0.0048	EPA Method 8080-TCLP	KB
TCLP Trichloroethylene (.5)	ND	mg/l	1747 10/30/92	0.005	EPA Method 8240-TCLP	PM
TCLP 2,4,6-Trichlorophenol (2)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP Vinyl Chloride (.2)	ND	mg/l	1747 10/30/92	0.01	EPA Method 8240-TCLP	PM
TCLP 2,4 D (Reg. Limit 10)	ND	mg/l	1830 10/13/92	0.024	EPA Method 8150-TCLP	KB
TCLP 2,4,5-Trichlorophenol (400)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP 2,4,5-TP (Silvex) (RL 1)	ND	mg/l	1830 10/13/92	0.0034	EPA Method 8150-TCLP	KB
TCLP Cresol (Reg. Limit 1)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP MEK (Reg. Limit 200)	ND	mg/l	1747 10/30/92	0.05	EPA Method 8240-TCLP	PM
TCLP Methoxychlor (RL 10)	ND	mg/l	1420 10/13/92	0.0036	EPA Method 8080-TCLP	KB
TCLP Pyridine (Reg. Limit 5)	ND	mg/i	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
Metals Digestion TCLP 3010	Digested	a/s	1600 10/06/92		EPA Method 3010	BWP
Metals Digestion ~ TCLP 7470	Digested	A/S	1000 10/06/92		EPA Method 7470	DKR
TCLP Silver (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.01	EPA Method 6010	GDG
TCLP Arsenic (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.2	EPA Method 6010	GDG
TCLP Barium (Reg. Limit 100.0)	2.2	mg/i	1333 10/10/92	1.0	EPA Method 6010	GDG
TCLP Cadmium (Reg. Limit 1.0)	ND	mg/l	1333 10/10/92	.01	EPA Method 6010	GDG



Analytical Chemistry • Utility Operations

11/05/92

221859 Continued

Page 3

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Chromium (Reg. Limit 5.	O) ND	mg/l	1333 10/10/92	.02	EPA Method 6010	GDG
TCLP Mercury (Reg. Limit 0.2) ND	mg/l	1200 10/18/92	.001	EPA Method 7470	LW
TCLP Lead (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.1	EPA Method 6010	GDG
TCLP Selenium (Reg. Limit 1.	O) ND	mg/l	1333 10/10/92	.2	EPA Method 6010	go c
Qua	ality Assurance	e for the s	SET with Samp	ole 22	1859	
Sample # Description	Result Units	Dup/Std Value S	•	t 1	ime Date	Ву

			TCLP	silver	(Reg.	Limit	5.0)			
	Blank	<.01	mg/l					1333	10/10/92	G DG
	Blank	<.1	mg/l					1333	10/10/92	GD G
	Standard	2.0	mg/l	2.0			100	1333	10/10/92	G DG
	Standard	.93	mg/l	1.0			107	1333	10/10/92	GDG
	Standard	.19	mg/l	.20			105	1333	10/10/92	G DG
	Standard	1.0	mg/l	1.0			100	1333	10/10/92	G DG
	Standard	2.0	mg/l	2.0			100	1333	10/10/92	G DG
	Standard	1.0	mg/l	1.0			100	1333	10/10/92	GDG
	Standard	2.0	mg/l	2.0			100	1333	10/10/92	GD G
221125	Duplicate	ND	mg/l	ND			100	1333	10/10/92	G D G
220640	Duplicate	ND	mg/l	ND			100	1333	10/10/92	GDG
220977	Spike		mg/l		1.	0	86	1333	10/10/92	GDG
221125	Spike		mg/l		1.	0	89	1333	10/10/92	G DG
221330	Spike		mg/l		1.	0	91	1333	10/10/92	GDG
221713	Spike		mg/l		1.	0	95	1333	10/10/92	GDG
221852	Spike		mg/l		1.	0	87	1333	10/10/92	G D G
221859	Spike		mg/l		1.	0	87	1333	10/10/92	GDG
222105	Spike		mg/l		1.	0	82	1333	10/10/92	GDG
221754	Spike		mg/l		1.	0	90	1333	10/10/92	GDG



Analytical Chemistry • Utility Operations

11/05/92 221859 Continued

Page 4

Sample #	Description	Result	Units	s Dup/Sto	d Value	Spk Conc.	Percent	Time	Date	Ву
221756	Spike	Koodii	mg/l			1.0	97	1333	10/10/92	GDG
221757	Spike		mg/l			1.0	94	1333	10/10/92	GDG
221760	Spike		mg/l			1.0	102	1333	10/10/92	GDG
221948	Spike		mg/l			1.0	93	1333	10/10/92	GDG
220640	Spike		mg/l			1.0	68	1333	10/10/92	GDG
220740	Spike		mg/l			1.0	51	1333	10/10/92	GDG
220742	Spike		mg/l			1.0	68	1333	10/10/92	GDG
221362	Spike		mg/l			2.0	94	1333	10/10/92	GDG
221363	Spike		mg/l			2.0	91	1333	10/10/92	G DG
				Arsenic	(Re	g. Lim:	it 5.0)			
	Blank	<.2	mg/l			_		1333	10/10/92	G DG
	Blank	<1	mg/l					1333	10/10/92	GDG
	Standard	11	mg/l	10			110	1333	10/10/92	G DG
	Standard	5.2	mg/l	5.0			104	1333	10/10/92	GDG
	Standard	5.5	mg/l	5.0			110	1333	10/10/92	G DG
	Standard	1.0	mg/l	1.0			100	1333	10/10/92	GDG
	Standard	5.5	mg/l	5.0			110	1333	10/10/92	GDG
	Standard	11	mg/l	10			110	1333	10/10/92	GDG
	Standard	5.4	mg/l	5.0			108	1333	10/10/92	GDG
	Standard	11	mg/l	10			110	1333	10/10/92	GDG
	Standard	4.6	mg/l	5.0			108	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND			100	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND			100	1333	10/10/92	G D G
220977	Spike		mg/l			5.0	107	1333	10/10/92	GDG
221125	Spike		mg/l			5.0	108	1333	10/10/92	GDG
221330	Spike		mg/l			5.0	107	1333	10/10/92	GDG
221713	Spike		mg/l			5.0	106	1333	10/10/92	GDG
221852	Spike		mg/l			5.0	102	1333	10/10/92	GDG
221859	Spike		mg/l			5.0	106	1333	10/10/92	GDG
222105	Spike		mg/l			5.0	108	1333	10/10/92	GDG
221754	Spike		mg/l			5.0	117	1333	10/10/92	GDG
221756	Spike		mg/l			5.0	114	1333	10/10/92	GDG
221757	Spike		mg/l			5.0	111	1333	10/10/92	GDG
221760	Spike		mg/l			5.0	115	1333	10/10/92	GDG
221948	\$pike		mg/i			5.0	113	1333	10/10/92	GDG
220640	Spike		mg/l			1.0	83	1333	10/10/92	GDG
220740	Spike		mg/l			1.0	89	1333	10/10/92	GDG
220742	Spike		mg/l			1.0	76	1333	10/10/92	GDG
221362	Spike		mg/l			1.0	94	1333	10/10/92	GDG
221363	Spike		mg/l	_		1.0	80	1333	10/10/92	GDG
				Barium	(Reg	. Limi	t 100.0)			
	Blank	<1.0	mg/l					1333	10/10/92	GDG
	Blank	<1	mg/l					1333	10/10/92	GDG
	Standard	10	mg/l	10			100	1333	10/10/92	GDG
	Standard	4.9	mg/l	5.0			102	1333	10/10/92	GD G
	Standard	.99	mg/l	1.0			101	1333	10/10/92	GDG





11/05/92

221859 Continued

Page 5

				D (24 d Value	Call Cana	Dancart	Timo	Data	
ample #	Description	Result	Units	Dup/Std Value	spk conc.	Percent	Time 1333	Date 10/10/92	E
	Standard	4.9	mg/l	5.0		102			
	Standard	10	mg/l	10		100	1333	10/10/92	
	Standard	4.2	mg/l	5.0		117	1333	10/10/92	1
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	
	Standard	9.9	mg/l	10		101	1333	10/10/92	
21125	Duplicate	ND	mg/l	ND		100	1333	10/10/92	1
20640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	
20977	Spike		mg/l		5.0	96	1333	10/10/92	
21125	Spike		mg/l		5.0	96	1333	10/10/92	
21330	Spike		mg/l		5.0	98	1333	10/10/92	
21713	Spike		mg/l		5.0	94	1333	10/10/92	1
21852	Spike		mg/l		5.0	95	1333	10/10/92	1
21859	Spike		mg/l		5.0	95	1333	10/10/92	
22105	Spike		mg/l		5.0	96	1333	10/10/92	
21754	Spike		mg/l		5.0	97	1333	10/10/92	
21756	Spike		mg/l		5.0	98	1333	10/10/92	1
21757	Spike		mg/l		5.0	99	1333	10/10/92	
21760	Spike		mg/l		5.0	96	1333	10/10/92	
21948	Spike		mg/l		5.0	98	1333	10/10/92	
20640	Spike		mg/l		5.0	86	1333	10/10/92	
20740	Spike		mg/l		5.0	86	1333	10/10/92	
20742	Spike		mg/l		5.0	85	1333	10/10/92	
21362	Spike		mg/l		5.0	90	1333	10/10/92	
21363	Spike		mg/l		5.0	88	1333	10/10/92	
.21303	Spike			admium (Re	g. Limit		.555	10, 10, 12	
	Blank	<.01	mg/l		9. Limit	200,	1333	10/10/92	
	Blank	<.1	mg/l				1333	10/10/92	
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	
		1.0		1.0		100	1333	10/10/92	
	Standard		mg/l	.50		100	1333	10/10/92	
	Standard	.50	mg/l						
	Standard	2.4	mg/l	2.5		104	1333	10/10/92	
	Standard	4.7	mg/l	5.0		106	1333	10/10/92	
	Standard	4.0	mg/l	5.0		122	1333	10/10/92	
	Standard	2.4	mg/l	2.5		104	1333	10/10/92	
	Standard	4.7	mg/l	5.0		106	1333	10/10/92	
21125	Duplicate	.03	mg/l	.03		100	1333	10/10/92	
20640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	
20977	Spike		mg/l		1.0	96	1333	10/10/92	
21125	Spike		mg/l		1.0	96	1333	10/10/92	
04774	Spike		mg/l		1.0	97	1333	10/10/92	
21330			mg/l		1.0	95	1333	10/10/92	
	Spike		11197				1777	40 /40 /00	
21713			mg/l		1.0	95	1333	10/10/92	
21713 21852	Spike				1.0 1.0	95 97	1333	10/10/92	
221330 221713 221852 221859 221754	Spike Spike		mg/l						
221713 221852 221859	Spike Spike Spike		mg/l mg/l		1.0	97	1333	10/10/92	





11		0 E	- /	0	2
1 1	/	uσ	•	9	_

THE COMPLETE	SERVICE LAB								_	
11/05/92			221	859 Conti	nued				Page 6	
				5	- L C=k	Cana	Percent	Time	Date	Ву
Sample #	Description	Result		Dup/Std V	atue spk 1.0	Conc.	96	1333	10/10/92	GDG
221760	Spike		mg/l					1333	10/10/92	GDG
221948	Spike		mg/l		1.0		96	1333	10/10/92	GDG
220640	Spike		mg/l		5.0		81		10/10/92	GDG
220740	Spike		mg/l		5.0		82	1333	10/10/92	GDG
220742	Spike		mg/l		5.0		82	1333	10/10/92	GDG
221362	Spike		mg/l		5.0		87	1333		GDG
221363	Spike		mg/l		5.0		88	1333	10/10/92	
222105	Spike		mg/l		1.0	- 1 1.	105	1333	10/10/92	GDG
				Chromium	(Reg.	Limit	5.0)		40 (40 (00	20.0
	Blank	<.02	mg/l					1333	10/10/92	GDG
	Blank	<.2	mg/l					1333	10/10/92	GDG
	Standard	9.9	mg/l	10			101	1333	10/10/92	GDG
	Standard	5.2	mg/l	5.0			104	1333	10/10/92	GDG
	Standard	.99	mg/l	1.0			101	1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0			100	1333	10/10/92	G DG
	Standard	9.6	mg/l	10			104	1333	10/10/92	GDG
	Standard	4.4	mg/l	5.0			113	1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0			100	1333	10/10/92	GDG
	Standard	9.5	mg/l	10			105	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND			100	1333	10/10/92	GDG
220977	Spike		mg/l		5.0		100	1333	10/10/92	GDG
221125	Spike		mg/l		5.0		99	1333	10/10/92	G D G
221330	Spike		mg/l		5.0		100	1333	10/10/92	GDG
221713	Spike		mg/l		5.0		98	1333	10/10/92	GDG
221852	Spike		mg/l		5.0		99	1333	10/10/92	GDG
221859	Spike		mg/l		5.0		101	1333	10/10/92	GDG
222105	Spike		mg/l		5.0		101	1333	10/10/92	GDG
221754	Spike		mg/l		5.0		103	1333	10/10/92	GDG
221756	Spike		mg/l		5.0		104	1333	10/10/92	G DG
221757	Spike		mg/l		5.0		103	1333	10/10/92	G DG
221760	Spike		mg/l		5.0		102	1333	10/10/92	G DG
	Spike		mg/l		5.0		103	1333	10/10/92	GDG
221948			mg/l		5.0		90	1333	10/10/92	GDG
220640	Spike		mg/l		5.0		89	1333	10/10/92	G D G
220740	Spike		mg/l		5.0		90	1333	10/10/92	GDG
220742	Spike		mg/l		5.0		95	1333	10/10/92	GDG
221362	Spike		mg/l		5.0		94	1333	10/10/92	GDG
221363	Spike		met.D	Mercury		Limit	-	.555	,	
	Dil	001		Mercury	incg.	TIME C	0.2,	1200	10/18/92	LW
	Blank	.001	mg/l					1200	10/18/92	LW
	Blank	.003	mg/l	010			100	1200	10/18/92	LW
	Standard	.010	mg/l	.010			100	1200	10/18/92	LW
	Standard	.010	mg/l	.010			100	1200	10/18/92	LW
	Standard	.010	mg/l	.010			111	1200	10/18/92	LW
	Standard	.009	mg/l	.010				1200	10/18/92	LW
	Standard	.009	mg/l	.010			111	1200	10/18/92	LW
	Standard	.025	mg/l	.025			100	1200	10/10/76	6 11

Continued





11/05/92

221859 Continued

Page 7

Sample #	Description	Result	Units	Dup/Sto	d Value	Spk Conc.	Percent	Time	Date	1
ounpro n	Standard	.010	mg/l	.010		·	100	1200	10/18/92	ı
	Standard	.011	mg/l	.010			110	1200	10/18/92	1
	Standard	.010	mg/l	.010			100	1200	10/18/92	1
	Standard	.009	mg/l	.010			111	1200	10/18/92	1
	Standard	.010	mg/l	.010			100	1200	10/18/92	1
	Standard	.010	mg/l	.010			100	1200	10/18/92	
	Standard	.010	mg/l	.010			100	1200	10/18/92	į
221125	Duplicate	ND	mg/l	ND			100	1200	10/18/92	`
221852	Duplicate	ND	mg/l	ND			100	1200	10/18/92	
220640	Spike		mg/l			.010	98	1200	10/18/92	
220671	Spike		mg/l			.010	79	1200	10/18/92	
220732	Spike		mg/l			.010	103	1200	10/18/92	
220733	Spike		mg/l			.010	64	1200	10/18/92	
220741	Spike		mg/l			.010	79	1200	10/18/92	
220742	Spike		mg/l			.010	109	1200	10/18/92	
221362	Spike		mg/l			.010	115	1200	10/18/92	
221364	Spike		mg/l			.010	90	1200	10/18/92	
220977	Spike		mg/l			.010	92	1200	10/18/92	
221125	Spike		mg/l			.010	93	1200	10/18/92	
221330	Spike		mg/l			.010	73	1200	10/18/92	
221713	Spike		mg/l			.010	76	1200	10/18/92	
221852	Spike		mg/l			.010	83	1200	10/18/92	
221859						.010	72	1200	10/18/92	
221948	Spike		mg/l			.010	113	1200	10/18/92	
222105	Spike		mg/l							
	Spike		mg/l			.010	86	1200	10/18/92	
221754	Spike		mg/l			.010	106	1200	10/18/92	
221756	Spike		mg/l			.010	104	1200	10/18/92	
221757	Spike		mg/l			.010	112	1200	10/18/92	
221760	Spike		mg/l	T 4	1000	.010	112	1200	10/18/92	
				Lead	(Reg	. Limit	5.0)		40 (40 (03	
	Blank	<.1	mg/l					1333	10/10/92	
	Blank	<1	mg/l					1333	10/10/92	
	Standard	10	mg/l	10			100	1333	10/10/92	
	Standard	5.2	mg/l	5.0			104	1333	10/10/92	
	Standard	1.0	mg/l	1.0			100	1333	10/10/92	
	Standard	5.0	mg/l	5.0			100	1333	10/10/92	
	Standard	9.9	mg/l	10			101	1333	10/10/92	
	Standard	4.4	mg/l	5.0			113	1333	10/10/92	
	Standard	5.0	mg/l	5.0			100	1333	10/10/92	
	Standard	9.9	mg/l	10			101	1333	10/10/92	
221125	Duplicate	.67	mg/l	.70			104	1333	10/10/92	
220640	Duplicate	ND	mg/l	ND			100	1333	10/10/92	
220977	Spike		mg/l			5.0	99	1333	10/10/92	
221125	Spike		mg/l			5.0	99	1333	10/10/92	
221330	Spike		mg/l			5.0	101	1333	10/10/92	
221713	Spike		mg/l			5.0	102	1333	10/10/92	(



Analytical Chemistry • Utility Operations

11/05/92

221859 Continued

Page 8

ample#	Description	Result	Units	Dup/Std Va	alue Spk	conc.	Percent	Time	Date	1
21852	Spike		mg/l		5.0		99	1333	10/10/92	1
21859	Spike		mg/l		5.0		100	1333	10/10/92	
22105	Spike		mg/l		5.0		100	1333	10/10/92	
21754	Spike		mg/l		5.0		102	1333	10/10/92	
21756	Spike		mg/l		5.0		104	1333	10/10/92	
21757	Spike		mg/l		5.0		102	1333	10/10/92	
21760	Spike		mg/l		5.0		100	1333	10/10/92	
21948	Spike		mg/l		5.0		102	1333	10/10/92	
20640	Spike		mg/l		5.0		89	1333	10/10/92	
20740	Spike		mg/l		10		88	1333	10/10/92	
20742	Spike		mg/l		5.0		88	1333	10/10/92	
21362	Spike		mg/l		5.0		92	1333	10/10/92	
21363	Spike		mg/l		5.0		91	1333	10/10/92	
	·		TCLP	Selenium	(Reg.	Limit	1.0)			
	Blank	<.2	mg/l					1333	10/10/92	
	Blank	<1	mg/l					1333	10/10/92	
	Standard	10	mg/l	10			100	1333	10/10/92	
	Standard	.91	mg/l	1.0			109	1333	10/10/92	
	Standard	1.1	mg/l	1.0			110	1333	10/10/92	
	Standard	5.4	mg/l	5.0			108	1333	10/10/92	
	Standard	10	mg/l	10			100	1333	10/10/92	
	Standard	.96	mg/l	1.0			104	1333	10/10/92	
	Standard	5.4	mg/l	5.0			108	1333	10/10/92	
	Standard	10	mg/l	10			100	1333	10/10/92	
21125	Duplicate	ND	mg/l	ND			100	1333	10/10/92	
20640	Duplicate	ND	mg/l	ND			100	1333	10/10/92	
20977	Spike		mg/l		1.0		95	1333	10/10/92	
21125	Spike		mg/l		1.0		89	1333	10/10/92	
21330	Spike		mg/l		1.0		111	1333	10/10/92	
21713	Spike		mg/l		5.0		95	1333	10/10/92	
221852	Spike		mg/l		1.0		107	1333	10/10/92	
21859	Spike		mg/l		1.0		96	1333	10/10/92	
22105	Spike		mg/l		1.0		100	1333	10/10/92	
221754	Spike		mg/l		5.0		102	1333	10/10/92	
21756	Spike		mg/l		1.0		115	1333	10/10/92	
21757	Spike		mg/l		1.0		102	1333	10/10/92	
21760	Spike		mg/l		1.0		96	1333	10/10/92	
221948	Spike		mg/l		1.0		110	1333	10/10/92	
220640	Spike		mg/l		5.0		89	1333	10/10/92	
220740	Spike		mg/l		1.0		89	1333	10/10/92	
220742	Spike		mg/l		1.0		92	1333	10/10/92	
221362	Spike		mg/l		1.0		100	1333	10/10/92	
221363	Spike		mg/l		1.0		105	1333	10/10/92	

Reported results for TCLP analysis are corrected upward to reflect matrix spike recoveries.

I dertify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President 285



Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-B04

Collected By:

Date & Time Taken:

09/26/92 1030

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221842 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/l	0151 10/27/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	0151 10/27/92	100	EPA Method 8240	PM
Benzene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	РМ
Bromomethane	ND	ug/l	0151 10/27/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/l	0151 10/27/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	0151 10/27/92	10	EPA Method 8240	PM
Chloroform	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/l	0151 10/27/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

221842 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	29	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/l	0151 10/27/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	0151 10/27/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	0151 10/27/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



11/05/92

Applied Research Associates RR #1, Box 120-A Waterman Road South Royalton, VT 05068-Attention: Jack Jemsek

Sample Identification:

WTP-B06

Collected By:

Date & Time Taken:

09/26/92 1100

Other Data: AFSCAPS Job #5735, Tinker AFB

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221841 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/l	0116 10/27/92	100	EPA Method 8240	PM
Acrylonitrile	ND .	ug/l	0116 10/27/92	100	EPA Method 8240	PM
Benzene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/l	0116 10/27/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	₽M
Chloroethane	ND	ug/l	0116 10/27/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	0116 10/27/92	10	EPA Method 8240	PM
Chloroform	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/l	0116 10/27/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM



Analytical Chemistry • Utility Operations

221841 Continued

Page 2

	PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
	trans-1,2-Dichloroethene	37	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
	Dichlorodiflouromethane	ND	ug/l	0116 10/27/92	1.0	EPA Method 8240	PM
•	1,2-Dichloropropane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
	cis-1,3-Dichloropropene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
•	Ethyl benzene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
	Methylene Chloride	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
	1,1,2,2-Tetrachloroethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
	Tetrachloroethene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
	Toluene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
	1,1,1-Trichloroethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
	1,1,2-Trichloroethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
	Trichloroethene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
	Trichlorofluoromethane	ND	ug/l	0116 10/27/92	10	EPA Method 8240	PM
	Vinyl Chloride	ND	ug/l	0116 10/27/92	10	EPA Method 8240	PM
	trans-1,3-Dichloropropene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President